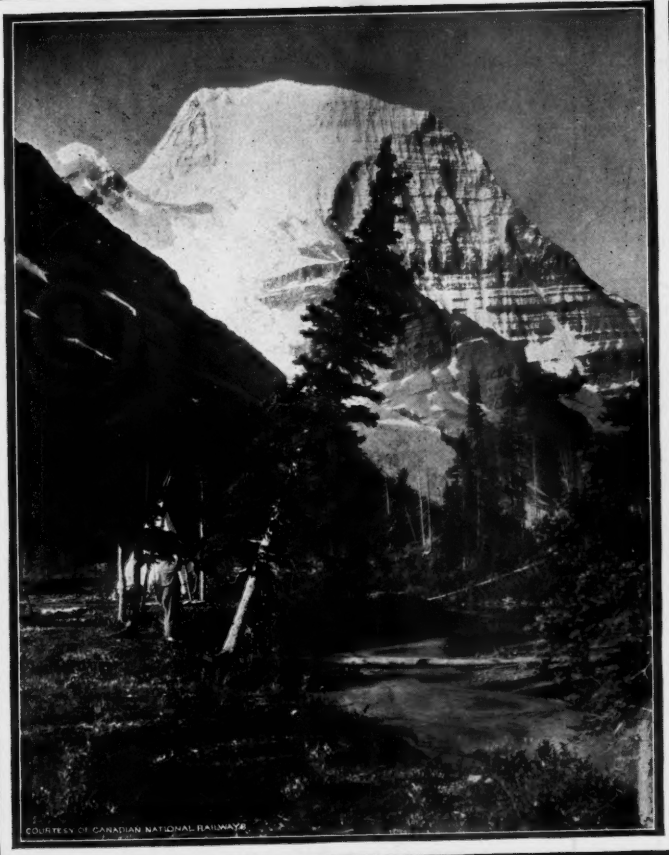
THE DENTAL DIGEST

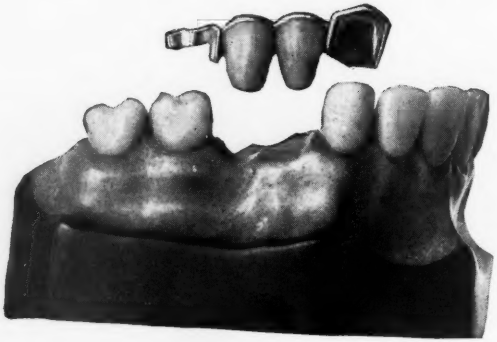


AUGUST - 1925

VOL. XXXI, NO. 8

EDITED BY
GEORGE WOOD CLAPP, D.D.S.

PUBLISHED BY
THE DENTISTS' SUPPLY CO.
CANDLER BLDG. TIMES SQUARE
220 WEST 42ND ST. NEW YORK.



What is a *Hard* Inlay Gold?

HARD and SOFT are relative terms. And metallurgy recognizes different *kinds* of hardness. Inlay golds, for instance, must possess indentation hardness, tensile strength and elasticity.

Without indentation hardness, to resist the battering impact of the opposing teeth, the outline of the occlusal surface of the inlay will be obliterated; or the metal may flow to such an extent that the enamel walls will be fractured.

Without tensile strength, a thin abutment casting may crack under the strain imposed upon the bridge supported by it.

Without elasticity, a cast abutment may bend under this strain and any inlay or crown may be deformed when seated upon the tooth.

The different *Ney-Oro Inlay Golds* (Weinstein Formulae) possess different degrees of indentation hardness, tensile strength and elasticity to meet the varied conditions of occlusion and stress in fixed and removable bridgework.

All the Ney-Oro Golds are so alloyed that these properties may be enhanced by heat treatment.

THE PIONEER

JOHN M. NEY

The J. M. NEY COMPANY

FOUNDED IN 1812

President

HARTFORD CONNECTICUT, U.S.A.

NEW GOLD FOR

PRECIOUS METAL PRODUCTS

OLD GOLD, SILVER PLATINUM ETC.

CONTENTS

VOL. XXXI AUGUST, 1925 No. 8

CONTRIBUTED ARTICLES		PAGE
Practical Rebasing of Lower Dentures	FRANCIS SCOTT WEIR, D.M.D.	521
Orthodontia for the General Practitioner	PERCY NORMAN WILLIAMS, D.D.S.	527
The Pithecanthropus Erectus—The Man of Java	ALFRED J. ASGIS, Sc.B., D.D.S.	539
The Principles and Practice of Administering Nitrous Oxide-Oxygen and Ethylene-Oxygen		545
Extracted Teeth Wanted		547
The Koch Treatment for Cancer	ALPHEUS W. HOYT, M.D.	548
Physicians Not Liable for Cures, Court Rules		551
Devitalization of Pulps and Conservatism in Pulpless Teeth	THEMISTOCLES J. MAVROCORDATO, D.D.S., M.D.	552
The Status of Dental Education		557
Dental Practitioners' Course at University of Toronto		562
The Two-Three Graduate Plan of Dental Education	HENRY L. BANZHAF, B.S., D.D.S., F.A.C.D.	563
A New Dental Directory		569
Dental Jurisprudence		570
It's Great to be a Dentist	J. M. B.	572
The Lincoln Memorial Hall		573
Preliminary Program of the American Dental Hygienists' Association		574
Richmond County (N. Y.) Dental Society Outing		576
December, 1925 Meeting of the First Dist. Dental Society, N. Y.		576
Dental Laws	ALPHONSO IRWIN, D.D.S.	577
PRACTICAL HINTS		582
DENTAL SECRETARIES AND ASSISTANTS		587
EXTRACTIONS		591
FUTURE EVENTS		592

❖ ❖ ❖ ❖

THE DENTAL DIGEST

GEORGE WOOD CLAPP, D.D.S., EDITOR

Published monthly, by THE DENTISTS' SUPPLY COMPANY, 220 West 42nd Street, New York, U. S. A., to whom all communications relative to subscriptions, advertising, etc., should be addressed.

Subscription price, including postage, $1.00 per year to all parts of the United States, Philippines, Guam, Cuba, Porto Rico, Mexico, and Hawaiian Islands. To Canada, $1.40. Great Britain and Continent, $2.75. Australia, $3.25. To all other Countries, $1.75.

Articles intended for publication and correspondence regarding the same should be addressed EDITOR DENTAL DIGEST, Candler Bldg., Times Square, 220 West 42nd Street, New York, N. Y.

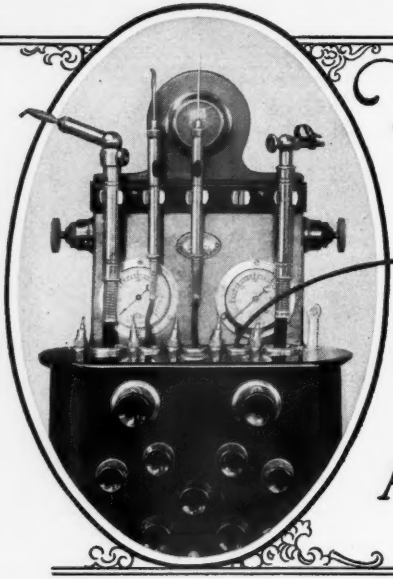
The editor and publishers are not responsible for the views of authors expressed in these pages.

Entered as Second Class Matter, at the Post-office at New York City, N. Y., January 29, 1909, under the Act of Congress, March 3, 1879.

OUR COVER THIS MONTH

One's first impression of Canada is that it is a study in mountains. A secondary view leads you to believe it to be a land of snows. Closer investigation proves, however, that despite the mountains and the snowfields it is a wonderful agricultural region, capable of supplying its inhabitants with all the necessaries of life, and plenty to spare, as its annual export statistics cheeringly show.

Our COVER PICTURE is a view of a spot in the Canadian Rockies, located in British Columbia. The big pile of real estate in the background is Mount Robson, with an elevation of 13,068 feet, and is one of the most striking scenic features along the line of the Canadian National Railways. Two glaciers roll down the side of this mountain, one of which, Tumbling Glacier, can be seen in the picture. This particular section is a sportsman's paradise, and well worth a visit by tourists and pleasure-seekers.



The New Type RITTER

Examination *and* Antrum Lamps

PRODUCE a strong, concentrated light properly focused. New bulb and lens construction guarantees long life. The lamps can be quickly and easily sterilized without injury. Ritter quality throughout in design and construction.

Send for Literature giving complete details

Or order direct from your Dealer

RITTER

RITTER DENTAL MANUFACTURING COMPANY INC. ROCHESTER N.Y.

THE
DENTAL DIGEST

Vol. XXXI AUGUST, 1925 No. 8

Practical Rebasing of Lower Dentures

By Francis Scott Weir, D.M.D., New York, N. Y.

The term "rebase" implies a readaptation of the base of the denture because of changes that have taken place in the tissues upon which it is seated. These changes may come from a number of sources, such as overcompression; trauma, from faulty articulation; and absorption, after recent extractions and operations and rapid shrinkage due to pathological conditions. However, the most frequent cause, perhaps, is the normal physiological change that is continually taking place in the supporting structures of the denture. Whatever the cause may be, the fact that a change has taken place and the denture no longer fits is the principal condition, and the question is, how can it be corrected? The answer is, by rebasing.

The rebasing of dentures has become a very common practice. In fact, a number of men seem to consider it the easiest way to correct an inefficient impression technic. However, this is not the purpose of a rebase. If a correct impression is taken and a careful vulcanizing technic carried through, the majority of dentures will not require rebasing until after they have been worn for some time. The erroneous idea seems to exist that refitting or rebasing is an easy way to cover a careless method of taking impressions, thereby hiding one's sins. The opposite of this is the case, for rebasing is a difficult and careful procedure. It requires a very accurate technic to prevent changing central relations and in that way destroying the articulation of the dentures. If it is kept in mind that dentures should be rebased (1) when normal changes have taken place so that the adaptation is no longer accurate, or (2) in some of those difficult tissue conditions where a fitted vulcanite tray is desirable, or (3) because of an occasional accident, then rebasing is a distinct advantage and helps to turn a failure into a success. In brief, rebasing should be the exception, and not the rule.

Rebasing of the lower denture is considered in this article because this is the denture which most frequently requires a readaptation. The reason is that the lower denture is usually the weaker of the two, due to the surface area covered and the shape of the ridge.

At the present time there are several methods of rebasing a lower plate that are employed. The materials vary from wax, compound

and plaster to a combination of these substances. Two methods that satisfy two tissue conditions, and which the writer has found to be efficient, will be given in this article.

The first method uses full compound. In preparing the denture, see that all undercuts are removed so that all walls are parallel (Fig. 1), and the patient can close without interference when the dentures are

Fig. 1

articulated in the mouth. If this is not done, protrusion is almost certain to occur and central relation will thereby be lost. Remember that the most important thing to maintain in rebasing is the correct central relation or bite. If this is lost, you might better leave it without a rebase or construct a whole new denture. When the undercuts have been removed, soften some sheet compound (not the wafer, as it is too thin), in water at a temperature of 150° F. Dry the surface of the impression. Take some of the softened compound, thin it out to about one-eighth of an inch in thickness and adapt it to the ridge. Trim off the excess compound to the outline of the denture and seal the margins with a hot spatula. (Fig. 2.)

Fig. 2

Place the upper denture in the mouth. Use a mouth blowpipe and an alcohol lamp with a yellow brush flame to heat the surface of the

compound until it has a velvety appearance. (Do not burn the compound.) Temper this by dipping in water at 150° for two seconds. This prevents burning the patient.

To insert in the mouth, hold the denture from the under surface in the incisor region. (Fig. 3.) When it is in the mouth, place the two dentures in articulation and, holding the lower from the outside

Fig. 3

near the bicuspid region (Fig. 4), tell the patient to touch the back part of the mouth and *close* firmly, so as to bring the lips together. Observe carefully whether the dentures are in correct occlusion. Have the patient hold the dentures together under pressure for one minute. Chill thoroughly and carefully remove. Place in ice water until the compound is thoroughly hardened.

Any great excess of compound may be carefully trimmed and tried in the mouth to check occlusion. If there has been a change, soften the material and repeat the operation. The surface of the compound should be free from wrinkles or burned areas and should have a dull appearance. If everything else is satisfactory except a small area,

Fig. 4

which shows the vulcanite, cut away some of the vulcanite and add a small portion of new compound. Wax is not recommended.

The points to be observed in the finished rebase are (1) central occlusion, (2) surface of compound, which should be dull with no wrinkles, no burned spots, no vulcanite showing and with a correct outline. This is a technic for normal tissue conditions.

The second method is for those cases of a high ridge with loose tissue on the crest. The material used is black boxing wax similar to

Fig. 5

the wax used for carding teeth. In this method the undercuts are removed. The denture is dried and a roll of wax of about one-eighth of an inch in thickness is placed all around and just inside the margin of the denture. (Fig. 5.) Use a hot spatula and seal the wax to the margin. Soften the wax by flaming lightly with a yellow brush flame from the mouth blowpipe. Temper the wax by dipping in water at 150° for one second.

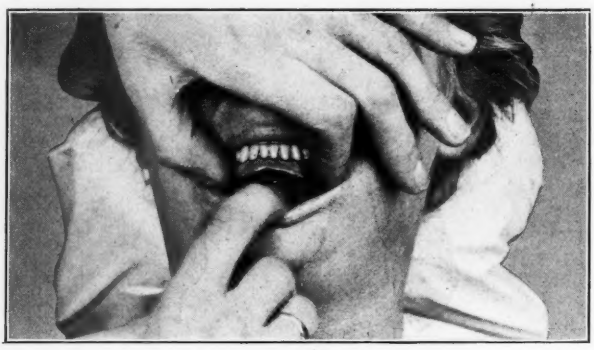


Fig. 6

Insert the denture in the mouth and have the patient close and chew. The wax will be forced toward the crest of the ridge from each

side and will carry the soft tissue to an upright position. Instruct the patient to continue and the teeth will gradually come into central occlusion. It is well to use some one of the denture powders to hold the upper firmly in position while this is being done. The chewing is continued for about five minutes when the denture is removed and the excess wax trimmed away. Repeat the wax as before and continue the chewing until the teeth are in correct central occlusion. The wax will have thinned down to a fine margin at the crest of the ridge and will have a smooth surface. The crest of the ridge need not be covered with wax, as it is the soft tissue area, and the greater amount of stress will be carried on either side of the ridge. (Fig. 6.) The excess at the margins is trimmed away and the case invested and vulcanized in the usual manner. When the rebase has been determined to be satisfactory, the case is ready to invest.

The investment is made in a large flask that fits accurately. A

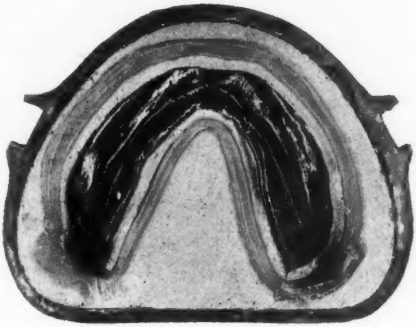


Fig. 7

fifty-fifty mix of plaster and artificial stone is made to the consistency of a thin putty. The case is invested with teeth downward so that the investment comes to the margins all around. (Fig. 7.) When this has set, a separating medium is applied and the opposite half poured in the same manner. After thorough setting has taken place, the case is placed in water at 135° temperature for fifteen minutes. The case is separated and all the compound removed. The preparation for the new vulcanite is made by using a large vulcanite bur and removing the surface only of the entire denture base. The margins are all cut square and smooth to give a finish to the denture. Then with a wheel bur cut a line about one-eighth of an inch inside the margin all around and connect this outline with cross lines. (Fig. 8.) Clean the surface with chloroform and pack the rubber cold. Cut a waste groove around the case for excess vulcanite. A cloth, such as percaline, is placed over

the rubber, and the flask is set in a press that can be boiled in water to test for the correct amount of rubber. When the case has been tested, it is vulcanized for 45 minutes at 280°, followed by one hour and thirty minutes at 305°. The case is polished in the usual way.

When the case is tried in the mouth, it should be checked carefully for articulation.

These two methods, while they require attention to details, are very practical and comparatively simple.

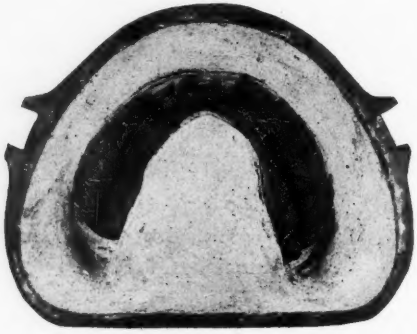


Fig. 8

No mention has been made of correct peripheral extension, as it is assumed that this is known and that the denture to be rebased has correct outline. Gross incorrect periphery extension and incorrect central relations require reconstruction and not rebasing, as to rebase means to readapt that which exists.

If you employ rebasing as it is indicated, it will be a valuable addition to your service, but to rebase because you desire an easy way to hide previous errors leads to careless methods and becomes a hindrance to progress.

220 West 42nd Street.

Orthodontia for the General Practitioner

By Percy Norman Williams, D.D.S., New York, N. Y.

(*Continued from July*)

The Making of Appliances

There are two general divisions by which appliances may be classified: removable and fixed. These have been divided until we have a sufficient number of appliances to meet the needs of the most exacting orthodontist.

Probably the most simple appliance for creating expansion with a minimum adjustment of the individual teeth is the Jackson appliance. This, as you know, is a removable appliance and can be retained either with bands or without. Since the appliance is easily dislodged without bands and is much less positive in its action, I strongly advocate the cementing of bands into place to secure additional anchorage.

This type of appliance is somewhat limited in its action and, while it becomes possible in the hands of an expert to hold one-half of the arch stationary, or approximately stationary, and move the other half, this, to the average practitioner, is impractical. I suggest, therefore, that you use this type of appliance in a limited number of cases where there is to be about an equal amount of bilateral expansion.

If you will read some of the latest works on handling the labial expansion arch and acquire knowledge of the fundamental principles controlling this type of appliance, I think you will adopt it as a standard appliance for simple cases. Almost all movements which can be accomplished with other types of appliances can be done with this.

Then there is the lingual wire, which has become very popular among specialists. There is no doubt that this type of appliance possesses many of the characteristics of an ideal expansion arch. It is a small wire, usually not over 18-gauge, and can be worn with scarcely any inconvenience. It is practically out of sight, exerts gentle pressure over a long period of time, possesses the great advantage of being easily removed, and yet can be retained and securely locked in position.

Except in the hands of a man of experience, I do not recommend this type of appliance for the general practitioner. It is so positive in its movements that any slight maladjustment will cause a movement of the teeth in a wrong direction. The ribbon arch and the pin and tube, because of the difficulty of technic in handling them, will have no consideration at this time.

We will now select a simple case and take up the construction of the appliance for such a case. The model shown in Figures 7 to 11 falls within that class which I have suggested might be accepted by the general practitioner.

Fig. 7

Fig. 8

Fig. 9

Fig. 10

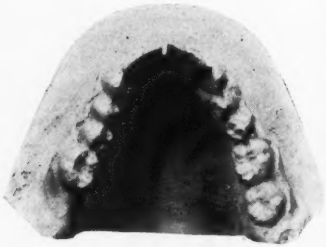


Fig. 11

This case shows extreme arrested development in both arches. The patient had chronic bronchitis from childhood and had always been a mouth-breather. If this patient had consulted you, unless you could have referred the case to a specialist, you should have considered yourself morally obligated to assist the patient in every possible way.

I select this case because it needs a great amount of bilateral expansion and is a good example of a case in which a Jackson appliance may be used. After taking upper and lower compound impressions and upper and lower plaster impressions, we will twist a 26-gauge soft-brass ligature wire between the first and second molars and between the first molars and second bicuspids in the upper arch, using pieces a foot long in order that we may grasp them firmly. Twist them four or five times until the patient feels a snugness, cut off at the end of the twisted portion and, using a serrated instrument such as an old gold-plugger or amalgam instrument, push up the twisted portion toward the approximate contact between the two molars and dismiss the patient for at least three days.

After the compound impressions have been poured, saw between the first and second molars and between the first molars and second bicuspids first, trim around the cervical margin of the second molar and loosely fit a German silver band of 36-gauge. Have the band about three-eighths of an inch wide. Make one for each molar and have them ready for the next appointment.

When the patient returns, remove the wires and there should be sufficient separation to insert the German silver bands, which are to be used as impression rings. Smear a little compound from a compound pencil around the inner part of the band which goes over the enamel ridge. Warm the band gently and quickly press the ring over the tooth and get an impression at the gingival margin. Hold the band in place and warm more compound; push it through the open end of the band and obtain an impression of the occlusal surface. This unites with the compound which has already been placed in the band and gives a very accurate, sharp impression of that part of the tooth to which a band is to be fitted.

This method of taking impressions of the individual teeth has been well described by its originator, Dr. Leuman M. Waugh. Dr. Waugh recommends packing this impression with amalgam, but for the past five years I have been using a low-fusing metal, which gives a very sharp, accurate die, sufficiently hard for the demands made upon it, with a great saving of time. The impression can be wrapped in a strip of paper about three-quarters of an inch wide and held in place with a rubber band.

With a camel's hair brush, coat the impression with a little oil or a little vaseline, melt the metal in an iron ladle and pour into the im-

pression. Some experience is necessary in pouring this metal, but a little practice should enable one to cast perfect dies.

Use these dies and fit bands with a lug on the buccal side for retaining the Jackson appliance.

At the next appointment these bands should be cemented into place and bands fitted on the cuspids with lingual lugs. If you need separation on the cuspids, use ligature wires as I have already described for separating molars. Under no consideration use rubber wedges, as these are obsolete and have no place in orthodontia.

After the four bands have been cemented, take a plaster impression, pour the cast, and you are ready for the construction of the appliance. If you have correctly diagnosed this case and have an outline of the upper arch which approximates normal, you will have observed that there is to be expansion of the first molars, bicuspids and cuspids.

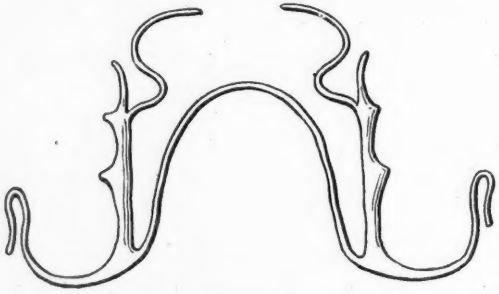


Fig. 12. Jackson Appliance for bilateral expansion.

For bilateral expansion of the teeth mentioned we should use the type of appliance shown in Figure 12. You will get the desired information and probably have a better idea of the construction of Jackson appliances by consulting Dr. Jackson's book,* and so I will avoid going into details regarding the making of this type of appliance.

After the appliance has been completed and inserted, it should be worn without expansion for a few days to allow the patient to become accustomed to it. In expanding the appliance, place it upon a card which in turn is placed upon any small board, such as a cigar-box cover. Place pins corresponding to the positions of the cuspids and second molars. Use a pair of pliers and exert pressure on the appliance buccally and expand about one-sixteenth of an inch, which would mean a thirty-second on each side, bearing in mind that there is to be expansion equally along the lateral halves of the arch. Repeat this expansion once in two weeks.

*_Orthodontia and Orthopedia of the Face_, by Victor Hugo Jackson, M.D., D.D.S.

When you have expanded the desired amount, a labial wire should be attached to the appliance for bringing back the centrals and laterals. The same appliance can be used in the lower jaw and should be retained with bands such as those suggested for the upper.

Let us now consider the adaptation of labial arch wire to this same case. We will separate the adjacent teeth from the first permanent molars. Twist ligature wires between the first molars and bicuspids and between the first and second molars. Securing sufficient separation is absolutely essential to taking good individual impressions.

Make the German silver impression rings and take impressions of the first molars for the low-fusing metal dies, and construct bands, soldering on buccal tubes for an 18-gauge arch wire. Fit these bands to the plaster casts and use great care in lining up the buccal tubes. They should be so adjusted that the arch wire will lie on a level with the cervical margin of the bicuspids, but not too high, as this will cause the ligatures to irritate the soft tissues, and not too low, as the ligatures will slip off the teeth. (Fig. 13.)

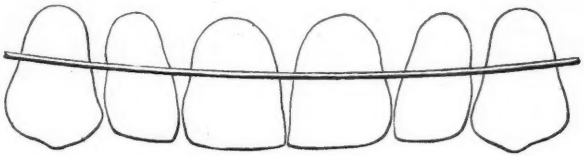


Fig. 13—Front View.

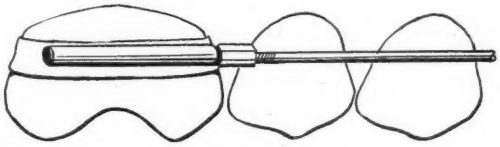


Fig. 13—Side View.

Solder half-round tubes on the insides of the molar bands, which can later be used for retaining a lingual wire for retention purposes. These half-round tubes can be purchased from any supply house handling orthodontic materials.

Fit a labial arch wire with threaded-end portions and conform it to the irregularities of the arch. The arch wire should be made to conform as nearly as possible to all of the teeth. Not only does this make it more comfortable for the patient, but the adjustment of the ligature wires is greatly facilitated and better retained where the arch wire is perfectly fitted. (Fig. 14.)

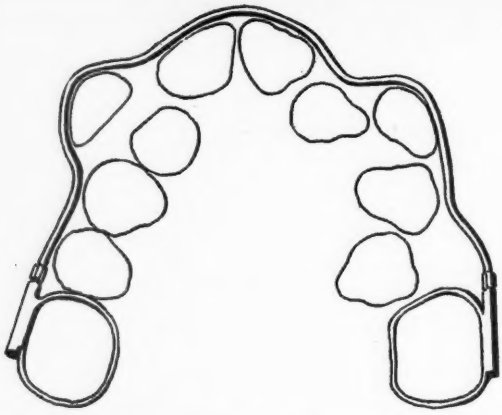


Fig. 14. Occlusal View. A properly adjusted wire.

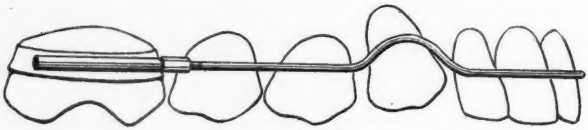


Fig. 14—Side View.

It seems unnecessary to say that the arch ends should fit smoothly into the tubes in a perfectly passive condition. The manipulation of a labial arch wire requires extreme care. It is absolutely necessary to bear in mind at all times that pressure will move teeth, and if the arch wire is inserted with an outward spring, that is, so as to spring buccally when it is inserted in the tubes, it will cause an expansion in the molar region. On the other hand, if the arch wire is so adjusted that it springs above the teeth in front and is pulled downward and ligated, it will cause a tipping of the molars.

These apparently trivial details are nevertheless fundamental to successful handling of a labial arch wire. The general practitioner should avail himself of every opportunity to secure assistance from a specialist in handling this wire. A little instruction and help in adjusting ligatures and bending the arch wire will be of the greatest value.

After the bands have been cemented to the first molars, insert the arch wire in one tube. Push it back, keeping the nuts free until it touches the anterior teeth, when it may be found to need still further adaptation. After you have adapted it to the best of your ability, insert both ends in the tubes, being sure that it is absolutely passive. It

should spring neither buccally nor lingually and should lie in such a horizontal position that ligatures can be easily adjusted.

Insert one or two ligature wires of 28-gauge soft-brass wire to retain the appliance, and dismiss the patient for a week.

When the patient returns, remove the arch wire and with a pair of pliers bend it slightly in front, causing it to spring apart in the molar region. If you will now place one threaded portion in one buccal tube, you will find that the other threaded end is no longer parallel when placed alongside the buccal tube. Adjust the arch wire until it is parallel with the tube, but springs buccally about an eighth of an inch. This will exert sufficient pressure between the molars and cause the necessary expansion in the buccal direction. It should also stand away from the cuspids about two millimeters.

Ligate the bicuspids and cuspids and tighten the nuts to a point where the arch wire will permit the passage of a piece of thin paper between the wire and the labial surfaces of the central incisors. Dismiss the patient and make an appointment for one week, when the appliance should be removed, the teeth thoroughly cleaned and the ligatures renewed. The case should be treated in the manner described until the desired movements have been obtained.

Selection and Treatment of Cases

We will now discuss the type of cases which we are to treat. Figures 15 to 19 are examples of a case which will be greatly benefited by simple expansion. As you will observe, the left central is malposed, having been caught probably by the action of the inclined planes, and has been forced lingually.

We must remember that a plan must be conceived before it can be executed, and, before attempting the selection of an appliance, we must make a complete and practical diagnosis.

This case is what is known as a mixed denture; that is, we have both permanent and temporary teeth present. It is highly desirable that we know the ultimate size of the arches at this time. It is, of course, impossible to predetermine the exact size, but we can arrive at a fairly accurate arch by taking measurements of the teeth. Observe that we have the first permanent molars in the upper arch, the first bicuspids, one lateral partly erupted and the centrals.

Let us measure the teeth present and attempt to estimate the diameters of those which have not yet erupted. We will measure the first permanent molar and select from our artificial teeth a molar corresponding in size to this measurement. We can get a fairly accurate measurement of the first bicuspid, and we will consider the second bicuspid as approximately the same size and select two artificial teeth to correspond

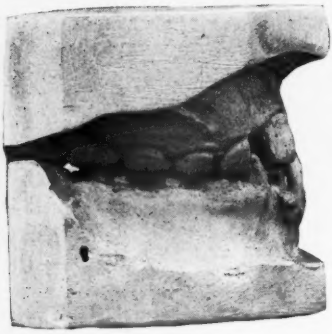


Fig. 15

Fig. 16

Fig. 17

Fig. 18

Fig. 19

to these. Using Black's measurements, we will find that the comparative diameter of a cuspid to a central is seven-eighths, so that we will select an artificial tooth corresponding to this size. We have the diameter of the lateral and central, which will enable us to complete the denture.

We will arrange these teeth in wax to approximate to the best of our ability what our conception is of a normal arch. This is to be our guide for expansion and for the adjustment of the individual teeth. I think you will agree with me that considerable expansion is necessary in the molar region and whatever appliance we adopt must be capable of exerting expansion between the molars.

If you use a Jackson appliance, use one with a base wire which can be expanded in the molar region, such as is shown in Figure 12. We can use a labial expansion wire of 18-gauge with lingual extensions running forward from the inside of the molar bands to and including the temporary cuspids. When we do this, we will ligate the left central incisor and, by exerting a gentle pressure on the nuts, we will move this tooth forward and bring it outside the lowers.

I think you will find a Jackson appliance the simplest type to use for this case, and, by adopting this appliance for both upper and lower jaws, we will be able to accomplish the necessary amount of expansion with the minimum discomfort. We will band the first permanent molars in the upper jaw and the temporary cuspids, having first produced separation, as I have already suggested. Cement the bands on the molars and temporary cuspids, and take a plaster impression, being sure that the plaster is thoroughly set before removal. Pour the cast and construct a Jackson appliance, such as is shown in Figure 12. Exert pressure one-sixteenth of an inch once in two weeks. This is a case where a small finger spring of 20-gauge wire, exerting a gentle pressure against the left central incisor, will accomplish the movement desired during the process of expansion. Great care should be used to exert the least pressure possible on the central, and the finger spring should be adjusted only once in two weeks.

The same type of appliance can be inserted in the lower jaw, and expansion must be exerted to maintain the size desirable with the upper. A finger spring can be attached to move the left lateral outward, but this should not be attempted until room has been secured for this tooth.

After the expansion has been produced to correspond in size with the predetermined arch which you have made with the artificial teeth, insert plain rubber retention plates and make no further attempt at tooth movement.

One of the most common faults of the general practioner is attempting too much. You will confine yourself in this case to simple expansion with a movement of the upper central and the lower lateral. Then

insert the retention appliance and examine the case occasionally to see that the retention appliance is in good order. The size of the arch should be maintained until the permanent teeth have erupted.

Figures 20 to 24 show another case which can be greatly benefited by expansion. It can be treated in much the same way as the case shown in Figures 15 to 19, except that finger springs can be added to the appliance after the desired expansion has been accomplished in the lower jaw for forward adjustment of the laterals. If you use removable appliances in this case, please bear in mind that they cannot be retained to exert positive pressure without bands on the molars and cuspids.

In showing the cases, I am merely suggesting the type of case which can be greatly benefited by simple expansion. There are a number of cases showing slight variations which fall within this class. I do not consider it necessary to burden you with a further description of these cases.

Summary

A brief summary to emphasize some of the points in this paper may be desirable. The general practitioner should be prepared to treat cases requiring simple expansion when it becomes impossible to send the patient to a specialist. The patients of this type who are mouth-breathers with very narrow, constricted arches can be greatly benefited.

The general practitioner should avail himself of opportunities for acquiring knowledge and practical methods of diagnosis to enable him to undertake simple cases.

The general practitioner should know his limitations and be extremely careful in accepting cases. He should limit himself to those cases which he feels he can confidently undertake.

The average general practitioner possesses sufficient general technical skill to carry on cases requiring simple expansion, but he should spend all the time necessary for a careful diagnosis, bearing in mind that technical skill is always subservient to an accurate, definite diagnosis. A plan must be conceived before it can be executed.

The positions of the six anterior teeth depend upon the positions of the first permanent molars.

Expansion in the molar region is absolutely necessary in narrow, constricted arches.

An adjustment of a number of teeth to be moved individually should be undertaken only with the advice of a specialist.

One should not become a slave to an appliance and endeavor to accomplish all kinds of movements with any particular type. The removable Jackson appliance is desirable for accomplishing bilateral expansion. The labial arch wire of 18-gauge is desirable for simple

Fig. 20

Fig. 21

Fig. 22

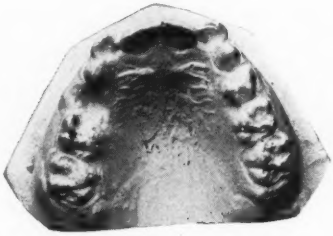


Fig. 23

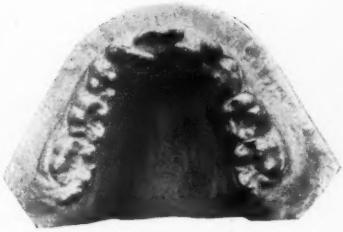


Fig. 24

expansion and the movement of one or two anterior teeth. In the hands of the man who understands the fundamentals of orthodontia this appliance is probably the most universally used and can be adjusted to move any teeth in any direction.

The general practitioner should not use any appliance requiring the skill of a specialist.

In conclusion let me offer a few "don'ts":

Don't accept a case unless you feel confident you can finish it.

Don't think that you can move teeth more successfully and faster than a specialist.

Don't think that a tooth will move faster because you apply great pressure.

Don't neglect to keep the mouth in a hygienic condition.

Don't attempt a case without a clear, definite plan of procedure; and, finally:

Don't fail to avail yourself of any opportunity to secure assistance from the specialist when you find the case is not showing the desired movement or when any other difficulty arises.

40 East 41st Street.

The Pithecanthropus Erectus—The Man of Java

The Three Molar Teeth, the Skull, and the Femur, as Evidence of the Evolution of Man

By Alfred J. Asgis, Sc.B., D.D.S., New York, N. Y.

Clinical Professor of Stomatology, New York Polyclinic Medical School and Hospital, New York, N. Y.

(*Continued from May*)

No less important a factor in establishing the existence of the Java man is the lower jaw. If the lower jaw of the Trinil race becomes known, it will be found, according to Schwalbe, that it is very similar to the jaw of the Heidelberg man. The two upper grinding teeth preserved are much more human than those of the gibbon, but they do not resemble those of man closely enough to confirm positively the prehuman theory. Dubois observes that the molar belongs to some hominid form and that this fact needs no further demonstration. Aside from its size and the greater roughness of the occlusal surface, it differs from the human molar in that the less developed cusp of the Pithecanthropus is the posterior cusp next to the cheek, while in man it is generally the posterior cusp next to the tongue. The simplification of the crown and the root of the Trinil molar is quite as extensive as it usually is in man.

The molar tooth brings forth some important evidence which is shown in the following table by Dubois, a comparison between the diameter and transverse section of the crown:

THE DIMENSIONS OF THE CROWN OF THE HEAD (CORONA)

	Pithecanthropus erectus	Anthropopithecus sivalensi	Anthropopithecus troglodytes
Sagittal diameter (anteroposterior line)...	11.3	10.4	8.9
Transverse diameter	15.3	11.6	12.1

Efforts have been made by various expeditions to supplement the materials with additional evidence, and in 1907 and 1908 a human left molar was brought back by the Selenka expedition.

It is said that Dubois also had in his possession a fragment of a primitive-looking lower jaw from the range known as the Kendreg hills, at the southern base of which lies the village of Trinil.

It is worthy of our notice that the skull and the jaws and teeth have played probably the greatest rôle in establishing the records of the antiquity of man. For example, the Australian type of head has nothing in common with the Neanderthal except some minor char-

acteristics of the nose, the region of the forehead and the peculiar form of the upper jaw.

Between 1848 and 1914 various discoveries have been made of series of human fossils belonging to intermediate races. In 1848 the well-preserved skull of the Neanderthal race was discovered at Gibraltar; in 1866 a fragment of the lower jaw of the Neanderthal race was discovered near LaNaulette, Belgium; in 1907 the lower jaw with

American Museum of Natural History Photo

Fig. 8. Skulls of Prehistoric Man—Pithecanthropus, Piltdown, Neanderthal and Crô-Magnon.

American Museum of Natural History Photo

Fig. 9. Prehistoric Man—Pithecanthropus, Piltdown, Neanderthal and Crô-Magnon.

teeth belonging to the race *Homo heidelbergensis* was discovered at Heidelberg; in 1911 portions of the skull and jaw of the type of *Eoanthropus* (the dawn man) was found near Piltdown, Sussex, England. Some of these races are now recognized as "missing links"

between the existing human species, *Homo sapiens,* and the anthropoid apes; and others are recognized as the earliest known forms of *Homo sapiens.*

According to estimates, the Heidelberg man is nearly twice as ancient as the Piltdown man, while Pithecanthropus (Trinil race) is four times as ancient. The Piltdown man is four times as ancient as the final type of Neanderthal man belonging to the Mousterian industrial stage and, therefore, must be considered of very great antiquity.

According to the more recent classification, the order in the evolution of man is as follows:

1. The Java Man.
2. The Piltdown Man.
3. The Heidelberg Man.
4. The Neanderthal Man.

In order to get a general visual impression of the oustanding facts, the following table has been arranged by the author to give the steps in evolution according to the more recent information.

RACE	Year Discovered	Place	Period Lived in	Parts Discovered
Pithecanthropus erectus (Java man)	1891	Trinil, Java.	Early Pleistocene.	Upper part of skull, three molar teeth, the entire femur.
Eocanthropus (Dawn man or Piltdown man)	1913	In plateau gravels at Piltdown, Sussex, England.	Middle Pleistocene.	Parts of a skull and jaw, chinless jaw, large canines, ape-like jaw.
Paleanthropus heidelbergensis (Heidelberg man)	1907	Mauer, not far from Heidelberg, Germany.	Early Middle Pleistocene	Well-preserved human jaw with all the teeth.
Homo primigenious (Neanderthal man)	1856	Neanderthal Valley between Düsseldorf and Elberfeld, Germany.	60,000 to 150,000 years ago.	Two skeletons found in original burial places.

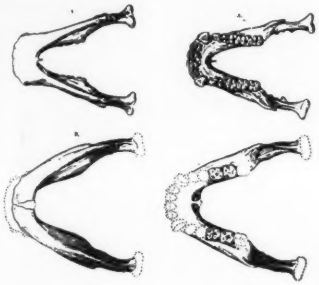


Fig. 10. Restoration of Piltdown mandible compared with that of man and chimpanzee.

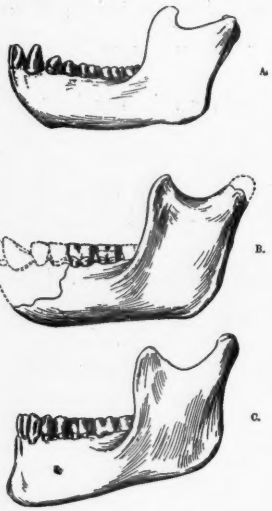


Fig. 11. Restoration of Piltdown mandible compared with that of man and chimpanzee, in left-side view.

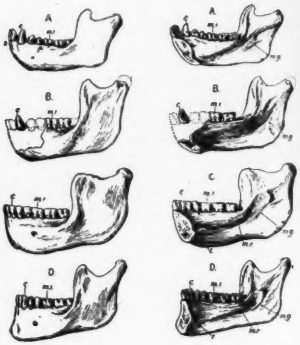


Fig. 12. Left outer side of lower jaw of Piltdown Man. Inner side view of lower jaw compared with chimpanzee, Heidelberg and Modern Man.

Fig. 13. Lower Jaws of Krapina Man. (Croatia, Austria-Hungary.)

Fig. 14. Crô-Magnon Skull. (Dordogne, France.)

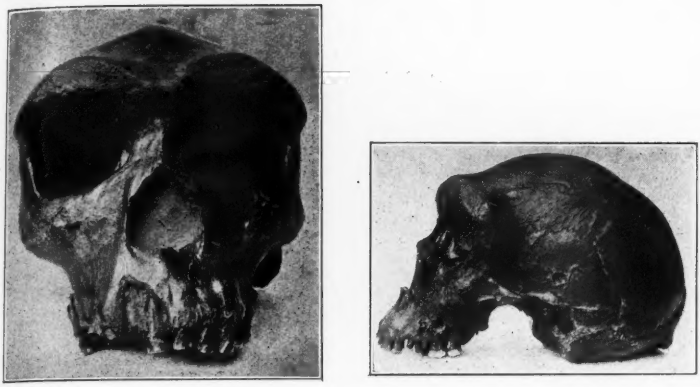


Fig. 15A. Photographs of front and left side views of skull of Rhodesian Man, showing large face with prominent brow ridges.

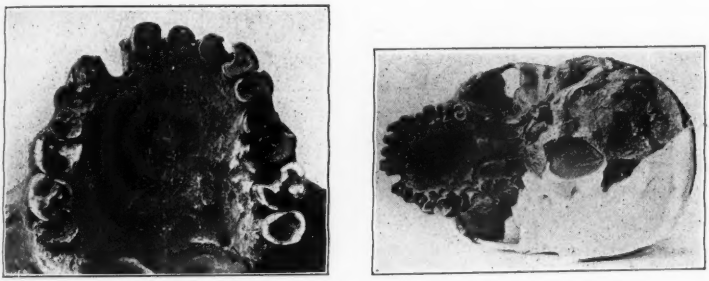


Fig. 15B. Photographs of palate slightly enlarged to show teeth and their partial destruction by caries. Lower view of skull of Rhodesian Man, showing position of foramen magnum.

Although we have had but meagre evidence, such as skulls and jaw and teeth, to trace the possible stages in the evolution of man, Dubois supposes a gradual development or evolution of man on the basis of his Java find. In making his deductions he refers to R. Owen's book, *Osteology of the Chimpanzee* (p. 351), in which he states that the African *Anthropopithecus* had in early youth longer bones as compared with the bones of those in maturer age. Dubois, in basing his theory of evolution on his find of the skull, the tooth and the femur, concludes with the following:

"From the results we now have at hand, it is undoubtedly in the Indian Province of animals where the evolution of man began its life drama with the appearance of the *Pithecanthropus Erectus,* and it seems that this evolution proceeded in a regular sequence: *Prothylobates, Anthropopithecus, Sivalensis, Pithecanthropus Erectus, Homo Sapiens,* each taking his place in the line."

REFERENCES:

Dubois, Eugene (1858)
Pithecanthropus Erectus—eine menschenahnliche Übergangsform aus Java. Batavia: Landesdrückerei, 1894.

Elliot, G. F.
Prehistoric Man and His History. J. B. Lippincott Co., Philadelphia, 1915.

Geddes, Patrick, and Thomas J. Arthur
Evolution. The Home University Library, Henry Holt and Co., New York, 1911.

Libby, Walter
An Introduction to the History of Sciences (see Chapter on *Scientific Imagination*) Houghton, Mifflin Co., New York, 1917.

Marett, A. A.
Anthropology. The Home University Library, Henry Holt and Co.

Osborne, H. F.
Men of the Old Stone Age. Charles Scribner's Sons, New York, 1916.

Pirsson, Louis V., and Schuchert, Charles
Introductory Geology, pp. 655-663. John Wiley and Sons, Inc., New York, 1924.

Whitnall, Harold O.
The World and Art of the Ancient Cave Men, pp. 412-426. *Scientific Monthly* November, 1923.

33 West 42nd Street.

"The Gateway to Health"

The proposed "dental magazine for the laity" to be called *The Gateway to Health* has been conceived as a means to popularize dentistry by telling the true story of dentistry's part in the conservation of health and the prevention and alleviation of disease.

If the plans already outlined are carried out, the new magazine will no doubt be useful to the profession in many ways and should prove an important ally in the campaign for dental clinics in public schools and other institutions.

The Principles and Practice of Administering Nitrous Oxide-Oxygen and Ethylene-Oxygen*

(*Seventh Article*)

Things That Interrupt a Quiet Anesthesia

There are four principal causes for interruptions of the anesthesia during the carrying period. In the order of their importance or frequency they are: awakening, nausea, coughing and cessation of breathing.

Awakening

Awakening may result from air entering around a loosely applied inhaler or from a lack of observation of the symptoms by the anesthetist so that the patient is not carried in a sufficiently deep anesthesia, or it may be an unavoidable result in certain patients who are of a difficult type because they have a high oxygen requirement and an anesthesia range so narrow that it is impossible to carry them in it. Even if the anesthetist is fortunate enough to hit this range in the beginning of the anesthesia, the patients awake before the operation is complete; or if the anesthesia deepens beyond this range, the anesthetist will be compelled to lighten the anesthesia, and such a patient is likely to come up too far because he recovers more rapidly than does a normal case.

Nausea

There are several causes for nausea. The most frequent cause is predisposition on the part of the patient. This is apt to exist in cases where the digestion is slower than normal so that food remains in the stomach after it should have been passed along. Sometimes it remains several hours.

Any patient with a full stomach is predisposed to nausea, but many such can be carried through the anesthesia for a short operation without causing any appearance of nausea.

Nausea may be precipitated in any patient by too deep an anesthesia or an uneven anesthesia in which the patient is shuttled back and forth between too deep an anesthesia and too light an anesthesia.

In prolonged anesthesias any patient without special preparation, and especially if there is any food in the stomach, may develop nausea. Most patients anesthetized for dental operations come unprepared in any way, but even with these unfavorable conditions, if a good anes-

*This series of papers is based on a clinic given before the Florida Dental Anesthetists' Society at Orlando, Florida, December 17, 1924, by J. A. Heidbrink, D.D.S., Minneapolis, Minn.

thesia technic is carried out, nausea will usually be slight and infrequent.

The predisposition of any patient to nausea may be lessened, and in many cases it can be entirely removed, by giving the patient 10 grains of chloretone an hour before the time for the anesthesia. Chloretone is slightly anesthetic and lessens the irritability of the stomach lining. It also increases the range in which anesthesia may be maintained, as will be more fully described under the heading *Premedication*.

Retching and, usually, pallor precede vomiting. If retching appears and continues to increase, vomiting is almost sure to follow if there is anything in the stomach.

When vomiting begins, the pack and the inhaler should be removed and the patient allowed to recover and vomit until vomiting ceases. Then anesthesia may be reestablished. In such patients retching is likely to continue, and there may be more vomiting. In cases where vomiting is persistent it may be necessary to postpone the operation to another day for which there can be more thorough preparation of the patient, or to resort to a local anesthetic. When vomiting occurs, it is good practice to inject a local anesthetic quickly and complete the operation at the same sitting. Postponement of the operation is usually unsatisfactory to both the patient and the dentist. The patient, after the more or less distressing experience, must look forward to a future operation, likely with lessened courage with which to face it. The office has been mussed up and the dentist has given his time without accomplishing his purpose. If in some manner the operation is completed, any unpleasant occurrences are soon forgotten by all concerned.

While nitrous oxide, as it is generally received from the reputable manufacturers, is a remarkably uniform product, the anesthetist may occasionally receive a tank which will cause nausea, restless and incomplete anesthesia, and depression afterward. In Dr. Heidbrink's practice this has been shown to account for a run of nauseated cases. Following a run of such cases, it is wise to change to a tank of new gas.

Coughing

Coughing is caused by mucus or blood getting into the trachea. In coughing the patient takes air so rapidly through the mouth that usually he wakes. It is desirable that the patient be allowed to cough until the cause of the coughing is removed.

Cessation of Breathing

In cases where breathing stops because the tongue is pushed back when tissue is displaced to permit the operation, the anesthetist may start the breathing by pulling the tongue and pack forward. In most cases the patient will resume breathing of his own accord as soon as

the air passages are thus opened. If he does not start breathing promptly, press on the lower ribs at breathing intervals and temporarily increase the oxygen if there are indications of lack of oxygen due to the cessation of breathing. It is not necessary to allow the patient to awaken if the anesthetist can arrest the anesthesia at a desirable plane, as it lightens, and hold it there.

Breathing may stop because of an overdose of the anesthetic. This condition and resuscitation method were fully discussed in the sixth article of this series.

In case of awakening from any cause, the patient may immediately be re-anesthetized.

(*To be continued*)

Extracted Teeth Wanted

I am in need of extracted upper centrals and laterals, in good condition, such as frequently come from pyorrhea cases. If you will send me some, I shall gladly refund the postage.

Some years ago, subscribers kindly sent some to Dr. Williams and me. They have been used so much that they have dried and broken.

Dentists visiting here from other countries have explained that with certain classes of people it is common practice to "clear out the mouth," when the posteriors are gone, to make full dentures. This should make teeth available.

To all who will help with even a few teeth, hearty thanks!

GEORGE WOOD CLAPP,
220 West 42nd Street,
New York, N. Y.

The Koch Treatment for Cancer

By Alpheus W. Hoyt, M.D., New York, N. Y.

(This article, which is in no sense dental, is published here for two reasons. First, dentists as professional men should know something about the treatment of a disease which claims so many victims of middle age (one death in every eight in persons more than 40 years of age is attributed to cancer) and for which the usual forms of treatment are so heroic and so often unsuccessful. Many of our patients are attacked by cancer, and some of them die because of it. Second, some members of our profession undoubtedly fall victims to cancer, and this magazine is quite as much interested in dentists as in their patients.

The author, who is personally known to the editor, realizes that there has been no demonstration of the Koch treatment which would be regarded as conclusive by the medical profession in general. He knows that it has been extensively condemned. But he knows also many persons, whose cases have been diagnosed as incurable and inoperable cancer, who either have gotten better because of this treatment or have, with striking unanimity, miraculously improved just at the time when this treatment was given and who persist in the belief that the treatment did it. His attitude toward the treatment is that what he has seen and learned obligates him to offer this treatment to his cancer cases. And what I have learned from him obligates me to offer this information to you in the hope that it may help someone for whom no other help is possible.—EDITOR.)

Results count in medicine as in all branches of applied science. Results are definite and decisive where a sufficiently large number of observations has been made to establish the percentage of successes and failures in comparison with other methods of dealing with the same degree and kind of disease.

Belonging, as I do, to a cancer family, I have without cessation since 1895 been anxiously awaiting some method of removing the cause of cancer at the same time that the local manifestation of the cancer disease lessened. Cancer appears to many to be a general infection. The site of its appearance seems to be determined by a blow, accident or chronic irritation. Surgery, x-ray or radium deals merely with the local manifestation. It is admitted that surgery has accomplished much in the apparent cure of cancer, but only where enough tissue could be removed and where the general energy of the patient was very high before and after the operation. The inherent vitality of the cells of the body determines the result of treatment in all major deviations from a normal, healthy condition of the body.

On October 30, 1920, Dr. William F. Koch of Detroit, Michigan, published in *The New York Medical Record* favorable results obtained by him in severe, hopeless types of cancer by the hypodermic adminis-

tration of a synthetic chemical of his own discovery and manufacture. Within a few days after the publication of this article I visited him in Detroit and observed his treatment and its results. I have made eleven such visits in the past sixty-six months and have examined several hundred patients, cured and under treatment, and it is my firm conviction, based on this prolonged and thorough investigation, that in serious involvement of the body of a patient with cancer Dr. Koch's results are far in advance of the three orthodox methods of treating cancer.

This synthetic chemical is of a composition unknown to me, but it is harmless to the average person and has clinically cured some hopeless, far-advanced cases of cancer, so I am justified in offering it to my cancer patients; in fact, I am obligated to offer the treatment to them.

That the unusual termination of these cases may be seen, I give first the history of one case of my own, then of four of Dr. Koch's cases. As his cases date back farther than my case, the permanence of the results can be better noted.

Case 1 (Dr. Hoyt's). Cancer of Breast. Mrs. S., aged 52. Had a large tumor of the left breast removed by a New York surgeon. It returned, and he removed it the second time. Again it returned. After some time she consulted me. I found a tumor five and one-half inches long and four and one-half inches wide extending from the middle of the breast towards the clavicle. Weight 109. General condition poor. The tumor was very painful. The first injection of the Koch treatment was given in May, 1923. This was followed by a reduction in the size of the tumor and some improvement in the general condition. The second and last injection was given in October, 1923. This seemed to overcome the malignancy, and progressive lessening in the size of the cancer took place. In August, 1924, the cancer measured two by one inches. In January, 1925, no trace of the cancer could be found in the breast or chest muscles. Present weight 135 pounds, and general condition good.

Case 2 (Dr. Koch's). Cancer of Uterus. Mrs. E. F., aged 37. In July, 1918, normal weight was 172 pounds. The first attack of nausea was supposed to be the nausea of appendicitis, viz., vomiting and pains that doubled her up. She lost 18 pounds in ten days from this attack. Several attacks followed, at intervals, with gradual loss of strength and weight. Finally a large tumor was found in the abdomen, and operation was decided on. The operation was performed in June, 1919, in Toledo and the following report was made on the condition found. "The trouble was cancer of the uterus and in such shape that an attempt to remove it would undoubtedly prove fatal; consequently there was nothing to do but close the wound and keep

the patient as comfortable as possible." Prognosis was given of six months more of life.

Mrs. E. F. was brought to Detroit and treated there by Dr. Koch. At that time her weight was about 80 pounds. Report made at hospital, November 26, 1919: "Palpable mass in lower abdomen extending from pelvis to two inches below umbilicus, about grapefruit size. Uterus fixed, pelvis infiltrated more on the left side and infiltration extends on both sides to crest of the ilium; uterus one mass with adjoining tissues." Rapid improvement set in after the second week of treatment. A gain in weight and color was noticed. The gain in weight continued to 170 pounds. The abdominal mass disappeared in the course of a year and normal health was reestablished.

Case 3 (Dr. Koch's). Cancer of Stomach. Mrs. P., aged 61 in 1919. Was operated for supposed gall stones. At operation on the lesser curvature of the stomach a large sausage-shaped tumor was found, nodulated. In November, 1919, her weight was 110 pounds. Physical examination showed a large tumor-mass filling the epigastrium, extending to below the umbilicus and involving the liver. The base of the left lung was involved. The left pelvis showed a mass as big as a fist, and smaller masses were found throughout the abdomen. Three treatments were given, and the patient returned to her home in six weeks. She gained to 187 pounds and is in perfect health six years after treatment was instituted.

Case 4 (Dr. Koch's). Cancer of Stomach. Miss L. T., aged 38. In March, 1922, she vomited blood, had loss of weight and strength with much pain in the back, abdomen and stomach, tarry stools. X-ray pictures of the stomach gave a diagnosis of cancer of the stomach. This was confirmed by operation. At time of treatment by Dr. Koch the patient was very much emaciated and it was thought that she could live but a few days. Gradual improvement set in with complete recovery by September of the following year when her weight reached 106 pounds. All tenderness and the tumor-mass disappeared and a fair nutrition was reestablished. Patient is now at work daily and is well except for attacks of indigestion that follow dietary indiscretions.

Case 5 (Dr. Koch's). Cancer of Rectum. Mrs. S., aged 48. Normal weight around 100 pounds. In the spring of 1921 she had bleeding from the rectum with increasing constipation. In the spring of 1923 bowel obstruction threatened. An operation was performed at the Henry Ford Hospital, March 17, 1923. Soon cancer masses appeared around the anus and later practically blocked it and the faeces came through the vagina. Patient was treated by Dr. Koch on August 7, 1923. Recovery was complete in fourteen weeks, except that the recto-vaginal fistula was not completely healed until January, 1924.

At present she is in good health. All stools come through the anus, and all traces of cancer have disappeared.

As large, malignant masses retrogress and sometimes completely disappear in inoperable cases after the Koch injection, it seems logical and proper that this Koch injection should be given to every operable case before or after the removal of the malignant mass by the surgeon so that undiscovered cancer cells might be destroyed by the injection. Moreover, as one death in eight of both sexes over forty years of age is due to cancer, every person over forty years of age is a potential cancer case and may have in the body for years a few cancer cells in the tongue, stomach, intestines or elsewhere, kept latent by the opposing vital force. When the general vitality lessens through increasing age, injury or disease, then the cancer process may advance with, and because of, the decreased opposition of the vital energy. This person probably would die of cancer, if accident or some disease did not before that time cause death. Based on this knowledge, I have taken what I may term an anticipatory injection of the Koch treatment and have given it to others. I recommend this prophylactic treatment of cancer to all persons of middle age and believe that such use would curb and control cancer to the same degree as is done by other means in tetanus and smallpox.

341 Madison Avenue.

Physicians Not Liable for Cures, Court Rules

Trenton, N. J., June 16, 1925.—Unless actual negligence is shown, physicians are not liable for cures, except when specifically promised, is the ruling of the Supreme Court. In upholding the action of the Hudson Circuit Court, the higher court yesterday dismissed a complaint brought by Albert Gramaldi, of Jersey City, against Dr. Peter J. Zeglio, visiting physician at the Muhlenberg Hospital, Jersey City.

Gramaldi was treated as a patient at the Plainfield Hospital for a broken wrist. The wound became infected, and he lost the use of the member. Suit for damages was then instituted. The court held that should Gramaldi be allowed to press his suit every physician would be subject to law suits if the cures were not effective. The court said that infection could come from a variety of causes, and that all the physicians can do is to aid nature in disposing of poisons.—*Camden (N. J.) Post-Telegram.*

Devitalization of Pulps and Conservatism in Pulpless Teeth

By Themistocles J. Mavrocordato, D.D.S., M.D., New York, N. Y.

The stand taken by a few prominent members of our profession in regard to devitalization and pulpless teeth is a question that must be discussed fully and publicly, for I think that the time has come when, given the conditions under which dentistry is practiced today, the dental profession as a whole should come to an understanding as to the conservation of pulpless teeth, a standard method for their treatment with its limitations and, particularly, the advisability of devitalizing good healthy teeth for the sake of bridgework of any kind.

The main problem of dentistry ever since it was recognized as a profession and science has been how to treat a pulpless tooth. Until one hundred or even fifty years ago, owing to lack of scientific means, dentists were justified in treating pulpless teeth empirically, trying to preserve them and bring about an apparent cure, aiming only at the comfort of the patient and the serviceability of the tooth. But today, with the wonderful advance of medicine and particularly of bacteriology and roentgenology, we must be very careful in taking a definite position with regard to devitalization and conservation of pulpless teeth, unless we stand on sound scientific bases.

There is no doubt that, due to the most careful and painstaking work of men like Prinz, Callahan, Rhein, etc., the treatment of pulpless teeth is more effective today than ever before, and excellent results may be obtained by a skillful operator. But I ask the members of the profession—what percentage of dental practitioners today are doing even fairly good root work, not to speak of the so-called 100% perfect root-canal work? How many are specialists in root-canal work, and what percentage of patients can afford to pay the fees of such men? And, again, how many of the originators of the different methods of root-canal therapy or of the specialists in root-canal work have demonstrated scientifically that the apical and the periapical tissues of a pulpless tooth become sterile after treatment and stop being a menace to the health of the patient?

When we attempt to answer these questions, we have to agree without hesitation that under present-day conditions of dental practice the majority of root work done may give apparent comfort and serviceability to the patient, but, on the other hand, is detrimental to his health, acting as a focus of infection and undermining his whole physical economy.

We do not have to be extremists on the subject, I think, to realize the actual state of things and try to do our share to ameliorate condi-

tions. Otherwise we lose our time in mere theories which are quite at variance with the facts.

Although Dr. Peeso, in an article published in *The Dental Cosmos* some time ago, calls wholesale extractions malpractice and brands extremists on the subject as maniacs, he agrees that in many series of radiograms of wealthy patients in his possession no more than 10% of the canals were filled properly.

Without going into details of description of the root-canal work done by different classes of dental practitioners of today, let us see what we mean by the perfect root-canal work of today, and what we really do accomplish by it.

A pulpless tooth before treatment is the most septic field that a surgeon has ever operated on. We all agree that when we deal with such teeth we deal with an infected area comprising not only the root canals and bulk of the tooth proper, but also the peridental tissues and the periapical bone structures. Under present-day conditions, following the various methods of root-canal treatment, electrolytic medication, silver nitrate and formaline, sodium and potassium, dichloramin-T, etc., we sterilize fairly well the periphery of the root canal, and we probably seal it permanently so as to avoid further reinfection from the dental tubuli, which invariably remain more or less infected even after the most copious and careful treatment, and in so doing we probably cut off the source of infection to the periapical tissues and bone structure. We check up our results by the x-ray findings, and so long as our canals are apparently well filled and we see no apparent extensive osteoclasia, and there is comfort and efficiency of the tooth to the patient, we congratulate ourselves on having performed a successful operation. But here is the stumbling-block of our therapy. We are asked very often by our medical colleagues, whenever they try to eliminate any focus of infection from the systems of their patients, whether we are sure that an apparently perfectly filled pulpless tooth is sterile and that the periapical tissue, innocent as it looks in the radiograph, is not a focus of infection and a permanent menace to the health of their patients. The only scientific answer that we can give is that we are not sure but we hope so, and that even if there remains a slight infection, the body will take care of it. And, I ask you, are we justified by such answers not based on real scientific facts in blaming even the extremists among the medical profession when they try to do their best for their patients?

Some of our colleagues, in their enthusiasm for the preservation of pulpless teeth, bring forth examples like the following. If a man has a badly bruised or wounded arm or leg and there has been some necrosis of the bone, no sane surgeon would advise the immediate amputation of such a member, without an effort to effect a cure. I am sorry to dis-

agree with them. It is true that, before amputating, the surgeon will try to effect a cure, but at the same time he is sure that if a cure is effected, it will be a permanent and radical one, while we dentists, because of the anatomical relations of the infected region that we are treating and the experimental stage of our therapy, depend mostly on guesswork and not on absolute certainty as to the permanency of the cure effected.

Now, let us consider the advisability of devitalization of teeth for the sake of bridgework. Some contend that when a tooth is devitalized and filled to the apex under aseptic conditions, that tooth will be as good as ever.

Eliminating the fact that a small percentage of practitioners are following strictly aseptic methods in devitalizing teeth, we must have in mind the following considerations. Under the present conditions it is not yet settled whether it is safer to remove the whole nerve (pulpectomy) or part of it (pulpotomy), and it is reasonably claimed that by going to the apex of the canal we almost always destroy the cementum and traumatize the periapical tissue, thus lowering its resistance and rendering it subject to infection in case it is fortunate enough to escape infection from the operation of the pulpectomy itself.

We are told repeatedly that after a certain period of time any pulpless tooth becomes infected even when it has apparently escaped the infection from the operation of pulpectomy itself.

Dr. Gardner of the Mayo Clinic, in a recent lecture, stated that whenever a pulpless tooth and its periapical structures were examined and found infected, invariably all the other pulpless teeth in the same mouth were infected, and he contended that infection was transmitted from one pulpless tooth to another.

As the result of the work of such men as Hunter, Billings, Rosenow and, more recently, of the most scientific and painstaking work of Dr. Weston A. Price of Cleveland, the following are a few of the facts revolutionizing our present conception and mode of operation which we seem very slow to realize and accept:

(a) There is a direct relation between the focal infections and degenerative diseases.

(b) The degenerative diseases of heart, kidneys, joints, nerves and muscles are secondary diseases, having as a primary causative factor focal infection of some sort, which is acting as a source of bacterial supply that may localize in the different organs or tissues, depending on the resistance of the body as a whole and of the special organ or tissue in particular. The diminished resistance is due to many contributing factors, general or local, such as heredity, malnutrition, infectious diseases, worry, lack of sleep, local injury or trauma.

(c) About 90% of the deaths today are due to some kind of de-

generative disease, and according to official statistics the death rate from those diseases is increasing, while the death rate from infectious diseases is decreasing.

(d) Over 10% of the deaths are attributed to premature failure of the heart function, due mainly to subacute endocarditis, 95% of which is caused by streptococcus viridans.

(e) Dental infections, although they are not the only foci of infection for the degenerative diseases, are one of the main foci, if not *the* main foci.

(f) More than 95% of teeth with pulp involvement have been found to be infected with streptococci (mostly viridans) and diplococci.

(g) The great majority of individuals are carrying teeth infected by the strains of organisms found in the great majority of degenerative diseases of heart, kidney, joints, muscles and nerves, which teeth are potentially capable of producing those lesions in the absence of an adequate defense, or, better, if the local (around the tooth infected) and the systemic defense breaks down.

(h) Roentgenograms do not reveal infection and may or may not reveal its effects.

(i) Teeth without visible absorption of their apices can be, and frequently are, infected in their pulps, dentine and periapical tissues.

(j) The extent of the absorption in a radiograph does not express the extent of the infection, except in part, as that individual's reaction to the infection is understood.

(k) Infected teeth can be sterilized in the mouth only with great difficulty or by the use of medicaments whose irritating properties readily injure the vitality of the periapical structures, lowering their resistance to infection.

(l) Root fillings rarely fill pulp canals sufficiently to shut out bacteria completely and permanently.

(m) Dental infection, just as infections in general, is a relative matter, and quantity and danger are both related to defense, local or general, which may vary from high to exceedingly low according to the condition of the patient, heredity, malnutrition, habits, etc.

(n) Local comfort is not a certain index of success or safety, because it may mean only the absence of local reaction which should, if present, inevitably make the tooth sore and fundamentally destroy the infection at its source, whereas the absence of this local reaction and its consequent destruction of the infection products permit them to pass throughout the body to irritate and break down the patient's most susceptible organs or tissues.

(o) When infected teeth produce disturbance in other parts of the body, it is not necessary that the infection be large to be able to produce very marked reaction and disturbances in that tissue.

(p) Infected teeth contain, in addition to microorganisms, their toxins which, through the lymphatics and the blood stream, may sensitize the body or the special tissues so that very small quantities of the toxin or the organisms producing it may cause marked reactions and disturbances within that tissue.

(q) Dental infections are always potentially harmful, and although very often they apparently cause no serious injury as long as the resistance of the individual is high, they may at any time become the source of serious injury as soon as a serious breakdown of the patient occurs, due to some contributing overload, such as malnutrition, pregnancy, fatigue, etc.

One of the arguments used by the enthusiastic conservatives is the fact that very often patients suffering from some degenerative disease of heart, kidney, joints, etc., attributed to dental infections are not in the least cured or benefited after the extraction of all their teeth is effected. They seem, unfortunately, to overlook the fact that once such lesions are established and left undiscovered or neglected for years, as is usually the case, they may become more or less permanent, due to the fundamental degenerative tissue changes, atrophies, etc., already established.

In conclusion, I believe that today, with the immense progress of the different branches of the medical profession, with the universal recognition of the fact of pulpless teeth as focal infection in systemic involvement, after the most wonderful work of men like Billings, Rosenow and, more recently, the monumental work of Dr. Price and the facts it has so convincingly established, taking into consideration the way that dentistry is practiced today and the experimental stage of our present root-canal therapy, it would be wrong for any of us to advocate publicly the preservation of pulpless teeth at large without definite specification, and especially the devitalization of healthy teeth for the sake of bridgework, when by the present remarkable progress of prosthesis it can be avoided. On the contrary, we must realize that the Gordian knot of our profession today must be how to diminish the pulpless teeth in our patients' mouths.

Until our modes of operation become less complicated and within the reach of everybody, and until they prove to be scientifically perfect, let us try as individuals and organizations to suppress, or at least diminish, the unethical practice by educating the public with lectures and publications along the lines of preventive dentistry. Let us tighten our ties with our medical colleagues, let us improve the course of our dental colleges along the lines of general medicine, and let us engage in serious experimental work. Then, and then only, will our great profession reach the noble destinies to which it is entitled to aspire.

505 Fifth Avenue.

The Status of Dental Education

(The series of articles of which this is the first, constitutes that portion of the annual report of the President of the Carnegie Foundation for the Advancement of Teaching which deals with dental education. It accepts the proposition that dentistry is not a specialty of medicine in the same way that laryngology is, for instance, but that it is a highly organized, separate profession. This article tells, in an interesting way, about the attitude of physicians, somewhat more than a century ago, toward dentistry and the rebuff of the dentists by the physicians which led to the founding of the first dental college. It deals with the present attitude of many in the medical profession in frank terms, while by no means ignoring the shortcomings of dentists which, in many instances at least, offer a superficial justification for the physicians' action.—EDITOR.)

DENTISTRY NOW AN INDEPENDENT AND CLOSELY ORGANIZED PROFESSION

Dentistry began to assume an organized independence about eighty-five years ago, when the first journal of dentistry, the first national society of dentists, and the first dental school were established almost simultaneously in the United States. Before 1868, however, there were practically no legal restrictions on the practice of dentistry in the United States or Canada; dentistry was regarded generally as a mechanical trade that any one might undertake who was disposed to do so, and its organization was superficial and comparatively ineffective. The six dental schools then existing graduated, in that year, only eighty-nine dentists, the great majority of those who aspired to practice dentistry in that period preferring to learn the trade as apprentices in offices of established dentists. In 1868, in response to cumulative demands for greater degrees of assured responsibility and efficiency in dental service, the legislatures of three states enacted laws that defined dentistry and specified educational requirements for a license to engage in its practice in the corresponding territory. This example was followed, during the period from 1873 to 1899, by the other states individually, and since 1900 such a law has been in force in every state in the Union.

In all of the states in this country and the provinces of Canada, dentistry and medicine are regulated by law as independent though related professions. Admission to their practice is based on diverse educational requirements, which are exacted for each profession by state or provincial boards of examiners, or equivalent officers representing the people. The courts have interpreted these laws to mean that dentistry and medicine are unlike in fact and in law, and that a dentist is not a physician and a physician is not a dentist.

Dentistry is now a highly organized profession, with about 60,000

practitioners in the United States and 3,200 in Canada. In each there is a national association of dentists; and practically every state or province has a state or provincial society and many district and local organizations of dental practitioners. There are forty-three dental schools in the United States and five in Canada. The state boards of dental examiners in this country have maintained a national association since 1883. Representatives of the dental schools in the United States and Canada have supported various general organizations of their teachers and schools since 1884, but are now united in the American Association of Dental Schools. The Dental Educational Council of America, representing three national organizations of state examiners, of schools and teachers, and of practitioners, respectively, performs for dentistry, in the United States, the functions that the Council on Medical Education and Hospitals of the American Medical Association does for medicine. The American College of Dentists is analogous to such medical organizations as the American College of Surgeons and the American College of Physicians. The Fédération Dentaire Internationale unites the practitioners of all nations, and will hold its next quinquennial congress in Philadelphia in 1926. The International Association for Dental Research consists of five research societies in this country and one in Canada. Many of the dental organizations issue periodicals, and a relatively large number of independent dental journals are published monthly. These dental associations have been conducted in complete independence of the medical organizations; and, owing to failure on both sides to recognize the fact that the primary objectives of dentistry and medicine are identical —to keep people well—there has been very little practical co-operation between bodies representative of the two professions. Habit, not intelligence, has maintained this mutual disregard.

Dentistry Not an Accredited Specialty of the Practice of Medicine

The abnormalities and diseases of such parts of the body as the eye, ear, nose, and throat are everywhere included in the practice of conventional medicine, and each is the primary concern of an important specialty of it; but in Canada and the United States, and also in other countries, the disorders of the teeth have been allotted to dentistry, which has been organized and is now legally defined and regulated as a division of the healing art that is intrinsically different from that of a specialty of medicine. The teeth and their closely adjacent tissues are the only parts of the body that have been generally singled out as a special domain of remedial treatment that may not be included in its entirety in the practice of medicine.

The exceptional position of the art of dentistry, compared with the accredited specialties of the practice of medicine, has developed from early recognition of the unusually large proportion of direct manual labor and of the high degree of digital skill that were required in nearly every act in the realignment or replacement of teeth, and in their reparative, remedial, or reconstructive treatment. The attainment of that special status has been due in large measure, also, to the abiding influence of the ancient and mistaken opinions among physicians, generally, that dental disorders usually were wholly local in extension; were relatively unimportant in influence on the general health; and, therefore, occasioned medical attention only if and after adjacent parts had been involved or deranged so grossly as to necessitate treatment. These erroneous beliefs, which were promoted originally by physicians and which persist among them even now, have been fostered, also, by general misunderstanding of the significance of early medical observations that teeth were almost wholly devoid of the capacity for self-repair; that dental disorders were not curable with drugs but could be remedied by mechanical means alone; that all the teeth, whether healthy or diseased, could be broken off or extracted without serious lasting effects on the jaws or on the welfare of the body as a whole; and that substitutes for all of the visible parts of lost teeth could be mechanically fitted in the mouth for effective maintenance of the dental functions. The concurrence of these conditions of incapacity for self-repair, incurability by medicinal treatment, recovery from the effects of total loss, and completeness of functional restoration attainable by artificial substitution, which do not apply collectively to any other part of the body that is supplied with blood and nerves, seemed, in the superficial judgment of physicians, to justify medical indifference to the teeth and to dentistry.

As a result of these unfounded assumptions and of such misapprehensions of the import of dental disorders by physicians for centuries, medicine gave little attention to the health of the teeth. Although the advance of civilization has been accompanied by accentuation of dental abnormality, the desirability of careful enquiry in this field was persistently ignored by medicine; and, sharing the popular belief that decay of teeth was unpreventable and loss of teeth unavoidable, physicians helped to bring about universal resignation to the supposedly inevitable incidence of dental imperfection and suffering. Until recently, medicine viewed this situation with about as much concern as that excited by loss of hair from the scalp, and did little more to understand or to control the influences responsible for the one than for the other. Under such conditions of indifference and neglect in the practice of medicine, which reflected the crudity, ignorance, and superstition of its development, the work of repairing and removing teeth,

and of preparing and fitting substitutes for the visible parts of lost teeth, was considered to be as unimportant medically as that of a barber, and was left indifferently to those whose special mechanical proclivities induced them to undertake it. A tooth was "pulled" or broken off for the relief of toothache, and strength was the only operative requirement. Any one who could make "false" teeth was free to fit them in his own way, and under any mutually satisfactory conditions, into the mouth of anyone to whom they could be sold. All but a few physicians refrained from rendering such service; and, consequently, goldsmiths, jewelers, ivory turners, umbrella makers, blacksmiths, mechanics, wig makers, tinkers, engravers, barbers, and itinerant jacks-of-all-trades became the most numerous practitioners of dentistry, which remained a simple trade and a mechanical subsidiary to medicine until its leading practitioners, men of high ethical standards and enlightened endeavor, raised it during the last century to the status of a profession.

After ignorance, commercialism, and charlatanry had lowered dentistry so far in public esteem that its most earnest practitioners in America were finally impelled to devise special measures to rescue it from its degradation, a few doctors of medicine, who had been concentrating their attention on dental disorders and who had a deeper appreciation than their medical confrères of the relation of the condition of the teeth and mouth to human welfare, cooperated with a number of progressive dentists in efforts to elevate dentistry in public respect and to improve its quality by associating it intimately with medicine. They endeavored, though unsuccessfully, to establish instruction in dentistry in schools of medicine, the most important of their proposals to this end having been rejected, by the faculty of medicine to which it was made, with the decisive comment that dentistry was not important enough to be included among the subjects of instruction in a medical school.

This historic rebuff, administered in 1839, to earnest physicians and dentists who sought, in effect, to make dentistry a specialty of medicine, did not dishearten them, but did divert their purpose and threw them upon their own resources. With a vision of its greater respectability and its higher serviceability, they determined that, if dentistry could not be taught in medical schools, it should be given a suitable educational foundation in independent colleges of dentistry.

Accordingly, in 1840, they established the Baltimore College of Dental Surgery. The first dental school began promptly to give instruction leading to the degree of Doctor of Dental Surgery (D.D.S.); graduated two students in 1841; and thus inaugurated formal dental education, which has been conducted in this country independently of medical education ever since, without objection from medicine and with little complaint from dentistry.

The educational needs of dentistry were ignored by American universities and schools of medicine until 1867, when Harvard established a dental school in affiliation with its medical school. Oliver Wendell Holmes gave instruction in anatomy and physiology to the students of both schools. Now, thirty-three universities in the United States have schools of dentistry.

The desirability of teaching the medical sciences to students of dentistry was appreciated by those who established the first dental school, and a degree of such instruction has been given in dental schools ever since; but dentistry's realization of its need for the medical sciences has never been keen enough to give to that instruction the quality it bears in medical education, or to impart to dentistry the character of a specialty of the practice of medicine. Growing need for laboratory facilities, to improve the instruction of dental students in the medical sciences, has induced administrative officers, in most of the universities containing both medical and dental schools, to bring about affiliations between these schools in order to prevent avoidable waste from unnecessary duplication of teaching resources; but such affiliations, which commonly take the form of instruction of dental students in laboratories in the medical buildings, have not been expressive of any desire or tendency anywhere to make dentistry a specialty of the practice of medicine. On the contrary, as a result of traditional antagonism, these adjustments, having been effected in most instances under high degrees of resistance from the medical or dental faculties concerned, or both, continue to be more or less unwelcome to those collectively who objected to them in the first place. Medical faculties, as an outcome of this lack of understanding and accord, are often frankly indifferent to the conditions or quality of the instruction given in their laboratories to dental students. In turn, dental faculties, which usually have little more than a perfunctory interest in instruction in the medical sciences, make the best of such awkward situations, as guests of medical faculties, by submitting to what they cannot avoid. The burden of the public disservice from this state of affairs clearly rests upon the shoulders of the medical faculties concerned.

Further indications of the uncompromising independence of dentistry and medicine, and also of indefensible neglect of public duty, are the facts that, although the medical schools in this country and Canada include instruction in the common features of such specialties of medical practice as oto-laryngology, rhinology, ophthalmology, and dermatology, in the curricula prescribed for prospective general practitioners of medicine, these schools with few exceptions completely ignore clinical dentistry, as though it were wholly lacking in importance in the careful practice of medicine. They disregard the relation of dental disorders to the inauguration and progress of serious diseases in other

parts of the body; fail to emphasize even the general associations between dental disorders and those of the closely related medical specialties named above; make no provision for effective instruction in surgery on the border line between dentistry and medicine; exclude practical dentistry from their dispensaries and hospitals; and decline to recognize dental service in its true relation to human welfare. Even research in dental relationships is regarded, in important schools of medicine, as something intrinsically inferior. These deplorable conditions occur in universities where dental and medical schools are closely associated; but, despite the prevailing medical indifference to the import of clinical dentistry, many physicians, often against the protests of the dentists of the patients concerned, peremptorily order extraction of particular teeth, or possibly of all remaining teeth, on the assumption, apparently, that a dentist's judgment cannot be right when it conflicts with a physician's guess. On the other side, however, it is also true that the biological ignorance of many dentists, owing to deficiency in their education in the medical sciences and in the requirements of oral health service, often mitigates the intolerance of physicians for the views of dentists in particular instances of seeming correlations between dental and extra-oral disorders, and frequently makes contributions by dentists to consultations on health service patently unreliable.

(To be continued)

Dental Practitioners Course at University of Toronto

A Dental Practitioners' Course will be given by the Faculty of Dentistry, University of Toronto (formerly the School of Dentistry of the Royal College of Dental Surgeons), September 14th to 19th (inclusive), at the Dental Building, 240 College Street, Toronto. All ethical dental practitioners are most cordially invited to spend one week in the intensive study of modern procedure in various branches of dentistry.

Bulletin of information will be supplied upon request.

The Two-Three Graduate Plan of Dental Education*

By Henry L. Banzhaf, B.S., D.D.S., F.A.C.D.

Dean, Marquette University College of Dentistry, Milwaukee, Wis.

Ever since what is now commonly referred to as the "two-three graduate plan of dental education" was suggested to us by Dr. William J. Gies a year ago, it has been the subject of a great deal of discussion, both favorable and unfavorable. Wherever the plan has been most energetically condemned, I have found that the unfavorable opinion has been based upon misconception and misunderstanding. A clean-cut definition of the nature of this plan, therefore, seems to be in order at the outset.

The two-three graduate plan of instruction consists of a five-year undergraduate course in dentistry leading to the degree of Bachelor of Science and the professional degree of Doctor of Dental Surgery, followed by one year of graduate work leading to the degree of Master of Science for those who elect to take it. The first two years are taken in the College of Liberal Arts and consist of necessary cultural, preliminary courses and courses fundamental to dentistry; the next three years, which are taken in the dental school, consist of professional courses only; the last or graduate year, which is elective, gives the graduate the opportunity for advanced study, research and specialization.

Please note that the two-three plan is a five-year course in dentistry; so also is the one-four plan. Let me drive this home—both plans call for five years of instruction in dentistry and its fundamental and preliminary sciences. On the face of it there is very little difference between the two plans, when they are compared, as to the number of clock hours of instruction in the various courses.

Both plans meet with the approval of the Dental Educational Council of America; both are steps in advance. There should be no prejudice against either plan. Neither plan should be forced on any school. Each school should be free to choose between them.

It is hoped, however, that an attentive study of the two-three graduate plan will convince the authorities of most dental schools of its greater merits. It will be my pleasure in this paper to point out some of the advantages inherent in the plan itself as well as the great advantages it has when it is considered in its relationship to education in general, and especially medical education.

At the very outset of the discussion of this most interesting subject

* An address given before the National Convention of the American Association of Dental Schools, Congress Hotel, Chicago, March 20, 1925.

I want to make the positive statement that the two-three graduate plan is not, as has been charged by some, an entering wedge for the two-four plan; in other words, a plan that would require six years before the professional degree would be given. Let me state further that if such were the idea of the proponents of this plan, you would find me opposing it. I am definitely opposed to a six-year dental course. In my opinion, the need for a six-year plan does not exist. Moreover, dentistry should never, in my opinion, lose its identity as a separate profession with its own degree. It can never be taught successfully as part of a medical curriculum as a specialty of medicine. Dentistry, with its traditions, with the history of its achievements, should maintain its independence on an equality with medicine. One of the virtues of the plan of dental education that I have the pleasure of discussing in this paper is that it brings about this equality with medicine which has been the subject of so much discussion and appears to be so highly desired by many members of the dental profession.

Not only must dentistry maintain its independence, but we should be careful not to allow it to be weakened by division. For this reason I want to take this opportunity to state that I am opposed also to any plan which contemplates dividing the dental profession into two groups, namely: a group that would be only technically trained, and another group that would have dental training as we now understand it. Any plan which encourages such a division would without question be harmful to the cause of dentistry. The status of dentistry in foreign countries where such a division exists is the best argument against any such proposal.

> [At this point in his discussion, Dr. Banzhaf, aided by stereopticon slides, gave a complete outline of the subjects, clock hours and semester hours of the two-three plan of dental education which he advocates. He went entirely through the Freshman, Sophomore, Pre-Junior, Junior and Senior years. He showed how the work of the first two years will be in the College of Liberal Arts of the University and the next and last three in the Dental School (thus the 2-3 plan). Then Dr. Banzhaf gave the schedule and number of hours advocated by the one-four plan, and showed that there is practically no difference between the two plans so far as the number of hours for technical matters is concerned. The matter within these brackets covered about half of Dr. Banzhaf's lecture.]

With this comparison in mind I want to consider the various objections that have been made to the two-three graduate plan.

1. It has been said that it would be impossible to arrange a schedule of sufficient clock hours without crowding the last three years.

Please examine the outline of the two-three plan that I have proposed, to ascertain whether or not this is true. The clinic instruction is spread over four semesters. Let me say again that I have no thought that the course I have proposed will meet with the unqualified approval of everyone, but one of the reasons why I have presented it is to show that it is possible to arrange a curriculum according to the two-three plan and that this curriculum includes all of the courses commonly taught in a dental school; and, further, that the student is not crowded.

2. Another objection to the two-three graduate plan has been the alleged "impossibility" of arranging a schedule in proper sequence.

An examination of my proposed curriculum shows that this assertion is unfounded. The course, in my opinion, is perfectly graded—in fact, the sequence is better than in the one-four plan because college physics precedes the dental technical courses.

3. The third objection brought against the two-three plan is the fact that the dental school will receive but three years of income from each student.

In a school that is an integral part of a university—and a dental school should be a part of a university—this objection does not hold. The two-three graduate plan will attract just as many students to the university as the one-four plan. Both are, in fact, five-year courses in dentistry. The student pays tuition for five years. The university treasury, therefore, will not suffer materially. Besides this, there is a great future for the graduate courses. The degree of Master of Science is worth striving for and our best graduates may be depended upon to return for the graduate year. This means an added income.

Of course, whichever plan a school adopts, it must expect a decreased number of students for a number of years. I am merely pointing out that the two-three graduate plan will attract as many *university* students as the one-four plan, although the attendance in the dental school may be reduced for a time. The Liberal Arts college will gain in students, the dental school will lose; the university will neither gain nor lose.

Having discussed and, I hope, disposed of the possible objections to the two-three graduate plan, permit me to point out some of its pronounced advantages.

One advantage is that the student passes through a more thorough test as to his intellectual fitness to enter so important a profession as dentistry. The faculty of a Liberal Arts college could hardly be expected to judge a student or to influence him beneficially or train him intellectually in so short a time as one year. It takes at least two years to bring about the desired effect on the student—one year is hardly more than an introduction. Trained educators, men who have made a study of pedagogy, are quick to see this point. At the last

meeting of the Association of American Universities, held at Minneapolis in November, the force of this argument was seen immediately and the problem of whether the medical and dental curricula should now be reorganized, and, if so, to what degree and how, was referred to a special committee of the Association. This action, it seems to me, is not only significant but gratifying, because it shows how deeply the presidents of our American universities are concerned in the problem of medical and dental education. The student who passes the two-year test in a Liberal Arts college, where the standards for judging him are intellectual in character, will be ready to take up his professional work in the medical sciences in a systematic, scholarly way. The two-year course will weed out most of the students who are unfit mentally for any learned profession; at least, no dental school need accept any of these weaklings for admission unless it chooses to do so.

If the two-three graduate plan is adopted generally, the dental student will be placed on the same intellectual basis as is the law student or medical student. Dentistry can receive universal acknowledgment as being on an equal footing with medicine only when its intellectual requirements are the same. The two-three plan would give the dentist the same quality of mental training as is possessed by the recent medical graduate. In addition to this, it would prepare him to practise dentistry as a branch of health service even more thoroughly than his fellow-student in the medical school because of the fact that his field is more restricted. Today I believe that our dental graduates are much better prepared to practise dentistry when they leave dental college than are our medical graduates to practise medicine when they leave medical college.

Another advantage that the student would derive from the two-three graduate plan would be the fact that after the first two years he would be free to choose between medicine and dentistry. As dental educators, we have all had experience with the occasional student who finds after a year or two that he should have entered a medical school instead of a dental school. Such a student is deterred from making the change to the medical school because of the great amount of time and money that he must sacrifice. The two-three graduate plan makes transfers from medicine to dentistry or from dentistry to medicine easier and puts such transfers on a sound educational basis.

Another reason why all the universities will find it desirable to adopt the two-three graduate plan is because it enables the dental graduate to receive the additional honor of a Bachelor's degree in science—the same honor that the medical student receives upon graduation. This is an added attraction and distinction. It marks the dentist as a man of culture and learning. This degree cannot be

awarded in the one-four plan because the Liberal Arts requirements for the Bachelor's degree cannot be completed in one year. In order to complete the requirements for the Bachelor's degree, a sixth year would be necessary. Graduate work and research work could begin only in the seventh year. The fact that this graduate work could not be begun until after the *sixth year,* when it may be begun after *four years* in most branches of learning, does not tend to encourage graduate work in dentistry.

The two-three plan will not allow graduate work after *four years* of undergraduate work, but it makes it possible at least after the fifth year because the student has already been raised to the Bachelor's degree. Thus many graduates will find it desirable to take a year of systematic graduate work, and will be encouraged to do so, because they will receive the same reward for their graduate studies as do the graduate students in other fields of learning. It is reasonable to predict that the Master's degree will be as much sought after in dentistry as it is in other fields of learning. Our graduate schools of dentistry will receive encouragement when real graduate work leading to a real graduate degree is offered. I predict that these schools will be well attended.

The fact that graduate work in dentistry will be encouraged will have its direct effect on the amount and quality of the research work that is so necessary if dentistry is to progress. A student is encouraged to interest himself in research work; in fact, he must show a reasonable aptitude for it in order to complete the thesis requirements for his Master's degree. If research work in dentistry is to keep pace with research work in medicine and other branches of learning, some plan of undergraduate instruction, such as the plan I am advocating, where graduate work and hence research work are encouraged, is absolutely necessary. The training of men qualified to do research work would also properly prepare men to become dental teachers.

Another and, to my mind, a most conclusive reason why the two-three graduate plan will work successfully in the future is because it *has been tried out and has worked successfully in the past.* Those of you who have read carefully the rules laid down by the Dental Educational Council of America have noticed that the Council at present permits the admission of students to the sophomore year in the four-year dental course who present at least 60 semester hours of college credits in addition to a full high school education. Included in the 60 semester hours, the Council prescribes that the student must have completed the usual two-semester college courses in inorganic chemistry, organic chemistry, English, biology and physics. In short, the student must have completed what practically amounts to a two-year pre-medical course.

The school with which I am connected has accepted sophomores on this basis since 1919. The first graduates under this plan were sent out in 1922. Thus we have had five years of experience with a two-three plan, and let me assert that it has been a most happy experience. I want to analyze the result of this experiment that we have been making since 1919. Of course, we were merely following the prescribed rules of the Dental Educational Council of America and had no idea that we were experimenting with the two-three plan or any other plan at that time.

When the two-three graduate plan was first proposed, those of us who thought it was impractical were inclined to criticize those of us who favored it on the ground that we had not given the matter the deliberate thought that its vital importance necessitated. I know that I, personally, have been charged by some of my best friends in this body with having turned a mental backward somersault. Let me say that when Dr. Gies first proposed the plan, I opposed it because I did not believe it to be workable and practical. I am a conservative by nature—I felt that Dr. Gies's suggestion was radical. However, I felt that it deserved our most sincere consideration, because I knew something of the tremendous amount of energy and thought that he had put into the task that was assigned to him by the Carnegie Foundation. But I also knew that it was worthy of study for the reason that we had, at our University, already successfully tried out this plan, notwithstanding the fact that we did not fully realize its significance as a scheme that might be applied to dental education generally. As I listened to the reading of Dr. Gies's paper a year ago, even though I was not favorably impressed with his central idea at the time, I remembered, more or less clearly, that we had graduated a number of men who had been admitted as sophomores with two years of prescribed Liberal Arts college work and that these men were among the leaders in their classes. One of the first things I did after my return from Chicago was to call for the records of these men in order to analyze them.

> [Here Dr. Banzhaf went into detail concerning 19 students who, since 1919, entered the sophomore year in dentistry at Marquette after they had completed two years of Liberal Arts work. He showed that every one of this group was a success in the dental course there, receiving marks well above the average.]

Let me repeat briefly, by way of conclusion and resumé, the points I have proved in this discussion. I have shown first that the two-three graduate plan is possible by submitting a curriculum which is both complete and well arranged. Secondly, I have shown that there

are no serious objections to the plan for the reason that (a) it does not crowd the student, (b) the sequence of the courses is excellent, and (c) the university income will not be materially reduced. My third point was that it is most desirable to adopt this plan because (a) it gives the student a thorough test as to his intellectual ability to enter a learned profession; (b) it places the dental student on the same intellectual basis as is the medical student; (c) it makes transfers from medicine to dentistry and vice versa easier; (d) it enables the dental graduate to receive the Bachelor's degree, thus encouraging graduate instruction in dentistry; and (e) it encourages research work in dentistry. My fourth and last point was that in the light of five years' experience the conclusion is that the two-three graduate plan produces superior students and hence superior graduates. I have proved all this, I hope, without belittling the honest opinions or questioning the sincerity of those who still hold that the one-four plan is better. Let me say again that both plans are better than the old four-year course that the profession has outgrown since 1917, a short period of eight years.

Let me earnestly ask you to study the two-three graduate plan. The more you do so, the more enthusiastic you will become over its possibilities and its beneficial effect on dentistry, the profession to the betterment of which the members of this Association have consecrated their lives.

A New Dental Directory

The Dental Register and Directory, published by R. L. Polk & Company, Chicago, is one of the most complete and accurate editions ever published. It contains information regarding every practicing dentist in the United States and Canada, together with the latest information regarding the dental laws of the various States, a complete list of dental colleges, and a wealth of other information of interest to the entire profession, as well as to the dental trade. It is a book that should have a wide circulation. Dr. Louis Ottofy, the Editor, and the publishers have placed both the dental profession and the dental trade under great obligations to them.

Dental Jurisprudence

(This report is neither official nor complete. It represents the impressions made by the speaker on one of the audience.)

Edwin A. Jones, a New York attorney, appeared before the Oral Surgery Section of the First District Dental Society, New York, on April 22, 1925, and presented to the members a very interesting talk on *Dental Jurisprudence.*

Actually speaking, dental jurisprudence resolves itself into a consideration of suits brought as a result of alleged malpractice. A dentist who takes charge of a case is expected to carry on his work with the exercise of a reasonable degree of knowledge, skill and learning. He must exercise his knowledge with reasonable care. What constitutes reasonable care is a question of fact from which different people might draw different conclusions. Such questions of fact are submitted to a jury and they render a verdict.

Now a dentist is not supposed to possess the highest degree of skill. Such a degree of ability is expected only from a specialist in his particular field.

Reasonable care itself varies in different localities. What might be good practice in one part of the city or country would be considered poor practice in another.

The dentist is always expected to exercise his good judgment in the treatment of a case. There is always difference of opinion as to what constitutes good judgment. When a patient presents with a toothache, ordinary care is expected of a dentist in deciding upon a course of treatment. Where, however, the face is swollen, the temperature is high and a casual glance would disclose the presence of an unusual condition, greater care in deciding upon a course of treatment is necessary. A dentist exercising his good judgment may, nevertheless, commit an error in diagnosis or treatment. This does not lay him open to a malpractice suit, for there can be no recovery for an honest error of judgment.

In order to protect himself against judgment for malpractice, a dentist must keep abreast of the times. This he may accomplish through attending clinics, reading his dental journals and taking an active interest in the affairs of his society. Just as the law is constantly changed, new laws being added and old laws repealed, so in dentistry changes are always taking place.

The dentist must go to visit the patient if it is necessary. He must respond with treatment and advice. This, however, applies only where the relation of patient and dentist has already been established. There is no law which compels a physician or dentist to accept a patient, even in an emergency. A dentist in his work must follow the established

practice. It is dangerous to go to extremes in the treatment of patients. Experiments, therefore, are best carried on at clinics until they have been proved of value.

Res ipsa loquitur is a familiar legal expression. Its meaning is, "The thing speaks for itself." Sometimes the mere condition itself bespeaks negligence. For example, if a dentist drops a crown into the patient's throat, this happening in itself presupposes negligence because ordinarily the tooth does not fall into the bronchus. If, while extracting a tooth, the dentist fractures the mandible, this also presupposes negligence. Following along the same idea, the breaking of a needle in the tissues presumes negligence. However, the fact that a dentist has broken off a needle does not in itself mean that the patient may sue and recover a judgment. It may be shown that needles are frequently broken during the injection and that this accident will occasionally occur in competent hands. An effort to remove the broken fragment should be made by one who is qualified to do so. The patient should be informed of the situation, for a failure to disclose the accident and neglect to remedy it are facts which a jury might consider negligence.

The mere fact that a dentist makes no charge for his services does not excuse him from negligence. He is also liable for operations performed in a hospital and clinic, but the institution itself is not liable. A charitable institution can never be successfully sued on a charge growing out of negligence. The consent of the patient is always essential before an operation may be carried out. Situations frequently arise with the patient under the anesthetic where an unlooked-for operation becomes necessary. To cover such emergencies, a physician by law is given the right to do what his good judgment dictates. Any negligence on the part of the patient contributing to his condition releases the dentist from liability. Where a patient is told to return for treatment and remains away, he is guilty of negligence. The burden of proof rests with the patient, and it is up to him to prove his case. Any action for malpractice must be brought within two years, and the death of the wrongdoer kills the claim.

The keeping of records is of great importance and will often help to defy an unjust claim. You never know when you will become involved in a suit, and entries in your records serve to refresh the memory.

Most cases of malpractice follow the extraction of teeth. A radiograph made at the time will often prove valuable in showing that the condition blamed upon the dentist existed before the case came into the dentist's hands.

From the case and facts described by the speaker it became clearly evident that malpractice suits against dentists are not uncommon and that at all times it is the best policy to be wide awake.

It's Great to be a Dentist

By J. M. B.

It's great to be a dentist
  And hear some fellow say:
"That guy is surely getting rich;
  He's working night and day.

"I knew him when he came to town;
  All he had was on his back.
Just see him now as he glides by
  In his shining Cadillac.

"It's inside work and easy;
  It's simply fill and pull.
You open up an office and
  Your waiting room is full.

"There's nothing to the game at all;
  It looks that way to me.
I have a boy in high school now—
  A dentist he will be.

"He isn't very bright in school;
  He's just an average lad,
But he has an eye for money
  And that is not so bad.

"I'll make of him a dentist
  And then his dad he'll thank.
He'll have fine clothes, a Packard car
  And money in the bank."

Just let him keep on raving;
  He's empty in the dome.
No use to keep on knocking
  When no one is at home!

The dental game is just the same
  As others, so they say.
Mixed with the bitter is the sweet—
  'Twill always be that way.

A life may be a big success
  And this to some seems funny;
It may be full of happiness
  But quite devoid of money.

The best reward is having
  At the setting of each sun—
A heart sincere, a conscience clear
  And thoughts of work well done.

The Lincoln Memorial Hall

The Lincoln Memorial is one of the most unique architectural constructions in the world. The cabin in which the great statesman was born (shown in the lower right corner) is enclosed in the large hall, both making a Shrine that devoted Americans always point to with pride.

A special trip has been arranged to this Lincoln Shrine and Birthplace. The train will leave the Illinois Central Station, Seventh and

Lincoln Memorial Hall.

River, Friday, September 25th, at 1:30 P. M., arriving back in Louisville possibly around 8:30 P. M. A booth will be located in Registration Headquarters, Kosair Shrine Temple, on Monday, September 21st, to accept reservations. On Tuesday reservations can be secured at the Brown Hotel. Reservations for this trip positively cannot be secured after Tuesday, September 22, 6:00 P. M.

For additional information write Dr. R. P. Thomas, Chairman Entertainment Committee, 3324 West Broadway, Louisville, Kentucky.

Preliminary Program of the American Dental Hygienists' Association

Louisville, Ky., September 21-24, 1925

MONDAY, SEPTEMBER 21

MORNING

Registration of Delegates, with examination of credentials.
Committee meeting of Executive Board.

2:00 p. m. to 5:00 p. m.
Business meeting.

TUESDAY, SEPTEMBER 22

9:00 a. m. to 11:30 a. m.
Reports from State Associations (papers limited to fifteen minutes).

NOON

Oral Hygiene Luncheon, with three-minute speakers.

2:00 p. m. to 5:00 p. m.
In joint session with the Mouth Hygiene and Preventive Dentistry Section.

PROGRAM

Forsyth Program, Based on Nine Years' Experience
By Harold DeWitt Cross.....Boston, Mass.
Place of Dental Health in a General Health Program
By A. T. McCormack (M.D.), State Health Officer, Kentucky State Board of Health, Louisville, Ky.
The Place of the Dental Hygienists in Relation to the Dental Profession and Public from a Dental Hygienist's Point of View
By Edith C. Hardy, D.H.....Rochester, N. Y.
Discussed by
Haidee Weeks Guthrie.....New Orleans, La.
Alfred Owre.....Minneapolis, Minn.
Harvey J. Burkhart.....Rochester, N. Y.

WEDNESDAY, SEPTEMBER 23

9:00 a. m. to 12:00 m.

Plans for and Results of a State-Wide Dental Health Week
By C. J. Hollister.....Harrisburg, Pa.
Plans for Co-operation between Mouth Hygiene Committees and Official and Unofficial Health Agencies
By Evelyn C. Schmidt, D.H.....Chicago, Ill.

Dental Educational Work Among Civic Groups
By John P. Buckley.....Los Angeles, Cal.
Discussed by
B. Lucian Brum.....Milwaukee, Wis.
Sidney J. Rauh.....Cincinnati, Ohio
L. Pierce Anthony.....Philadelphia, Pa.

2:00 p. m. to 5:00 p. m.

The Present Legal and Professional Status of the Dental Hygienist
By Guy S. Millberry.....San Francisco, Calif.
The Future of the Dental Hygienist in Public Health Work
By Alfred C. Fones.....Bridgeport, Conn.
Preventive Dentistry; Its Scope and the Place of the Dental Hygienist
By Harold Leonard.....Minneapolis, Minn.
Clinical Results From Periodic Prophylactic Treatments
By Gillette Hayden.....Columbus, Ohio
The Conservation of the First Permanent Molar
By Thaddeus P. Hyatt.....New York City
Discussed by
Anna V. Hughes.....New York City
Arthur D. Black.....Chicago, Ill.
Celia Rich.....Nashville, Tenn.

THURSDAY, SEPTEMBER 24

9:00 a. m. to 12:00 m.

Suggested Methods for Teaching Mouth Hygiene and Nutrition
By Rose E. House.....Bridgeport, Conn.
Fundamentals of Nutrition and Results of Research
My Mariel Hopkins.....University of Kentucky
Some Conclusions Concerning the Etiology of Dental Caries
By Russell W. Bunting.....Ann Arbor, Mich.
Discussed by
N. T. Ballou.....Richmond, Va.
R. S. Towne.....Bismarck, N. D.
C. H. Schott.....Cincinnati, Ohio

Richmond County (N. Y.) Outing

The boys of the Richmond County (N. Y.) Dental Society believe in having a good time on their annual outing which was held this year on June 27th. In the baseball game between the Benedicts and Mavericks, the Mavericks won by a close score. Our correspondent doesn't say *how* close. Such get-togethers are good for dentists and dentistry—there should be lots more of them.

December, 1925 Meeting of the First District Dental Society, New York

The First District Dental Society of New York announces a three-day meeting to be held December 2-4, 1925. It is planned to make this an annual feature of the Winter program of this Society. The program will contain a carefully selected list of essays by dentists and physicians of national reputation, and clinics by leading exponents of the various specialties of dentistry. The watchword of the meeting will be *Better Dentistry,* and no effort will be spared to make this meeting definitely helpful to every one who attends.

All sessions will be held at the Hotel Pennsylvania, New York. Exhibits will be featured and opportunities for their inspection will be provided.

DENTAL LAWS

Summary of Dental License Requirements Throughout the World

By Alphonso Irwin, D.D.S., Camden, N. J.

OKLAHOMA

Board of Dental Examiners. To be announced.

The dental laws are dated 1889, 1890, 1894, 1905, 1913, 1919. The English language, dental supervision, examination and registration are mandatory. June and December examinations are held in the Senate Chamber of the Capitol Building in Oklahoma City; fee $25.00.

Requirements. Accredited high school diploma, or equivalent 15 units, and graduation from a recognized dental college. Written or theoretical examination upon subjects taught in an accredited dental college. Practical operative tests—gold inlays, gold amalgam and silicate fillings, or as announced.

Prosthetic requirements. Plaster model of full upper and lower maxilla from edentulous mouth impressions taken by candidate. Bite plates and artificial teeth set up with normal occlusion and technique, finished up to the point of flasking. Also construct completely, either a porcelain or shell gold crown, as the Examiner may designate.

No interchange of dental licenses with any state. Section 4 of the 1919 Oklahoma dental law contains a reciprocity clause based upon the Asheville Resolution.

Initial registration with the County Clerk; biennial registration by July 1st with the Board; fee $1.00. Dental Hygienists examined, fee $10.00; re-examination, $5.00. Address L. M. Doss, 245 American Bank Bldg., Oklahoma City, Oklahoma.

INFORMATION REGARDING EXAMINATIONS IN THE STATE OF OKLAHOMA, AND RULES GOVERNING THEM

APPLICATIONS

Rule I. All persons who wish to practise dentistry in this State must fill out and send to the Secretary of the Board an application, a blank form of which will be furnished by the Secretary.

Rule II. In the case of those wishing to take the examination under the terms of reciprocal contracts existing between this and other States the application must be accompanied by a reciprocity certificate from the Board of Dental Examiners from the other State.

Rule III. In all other cases the application must be accompanied by the applicant's dental diploma.

Rule IV. The applicant under Rule III. must also present with his application and dental diploma (or college certificate) his High School diploma. This must be from an accredited high school, or from a college or university of at least equal standard, and must represent four years of study, and an earning in credits of at least 15 units; a unit being a study pursued for a year with five recitations each week.

Nine of these units *must* be from the following subjects: English Grammar and Rhetoric, Composition and Literature, three units required, four allowed; Latin, two units required, three or four allowed (one year's work in German or French may be substituted for the second year in Latin); Geometry, one unit required, one and one-half allowed; Algebra, one unit required one and one-half allowed; Physics, one unit; Chemistry, one unit.

The remaining six units may be from the following subjects: Histology, one, two, or three units allowed; Botany, half unit; Zoology, half unit; Physical Geography half or one unit; Trigonometry, half unit; Drawing, half unit; German, two units; French, two units; Manual Training, one unit. A year's work in a dental office may be substituted for manual training. In *All* cases the applicant must present a certificate of moral character.

Rule V. All applications and credentials must be in the hands of the Secretary at least ten days before the date of the examination.

Photograph of applicant must be sent with application.

Fees

Rule VI. The fee for all examinations is $25.00.

Rule VII. The fee for re-examination, in case of failure to pass, is $10.00.

Fee for Lady Hygienists, $10.00; for re-examination, $5.00.

Rule VIII. No fee will be returned to an applicant after he has filed his application and entered upon his examination.

Examinations

Rule IX. Theoretical. The examinations shall be written or oral or both, in the following subjects: Anatomy, Histology, Physiology, Chemistry, Oral Surgery, Pathology, Bacteriology, Materia Medica and Therapeutics, Orthodontia, Operative Dentistry, and Prosthetic Dentistry, Crown and Bridge work and Metallurgy.

Rule X. Practical Operative Dentistry. Each applicant must come prepared to insert gold inlays, gold amalgam and silicate fillings. Each cavity, when prepared, must be inspected by the Examiners before the filling is inserted. Patient and operating chair will be furnished by the Board, but all materials and instruments (including dental engine) must be supplied by the applicant.

Rule XI. Practical Prosthetic Dentistry. Each applicant must furnish himself with Plaster Bowl, Spatula, Impression Trays, Articulator, Flask, and a full upper and lower set of teeth, and such other things as he will have use for in construction of a Practical Denture (which is required), and the Board suggests that each applicant bring such things with him.

Rule XII. Practical Crown Work. Each applicant must construct a complete crown, either Porcelain faced or shell as designated by Examiner.

Rule XIV. Two regular examinations will be held each year; the Spring examination in June and the Fall examination in December.

Rule XV. The law makes no provision for temporary licenses to practice between examinations, and none will be granted.

Rule XVI. In the theoretical and practical work of the examination the applicant must have a general average of seventy-five per cent. In operative, prosthetic and crown work, if the applicant falls below seventy-five per cent he shall fail to pass in theory, if applicant falls below fifty per cent on any subject he shall fail to pass; but may be re-examined on that in which he failed at next regular examination.

Rule XVII. All written examinations shall be on paper furnished by the Board.

Rule XVIII. At the opening of the examinations the applicant will be furnished with an envelope containing a card with a number. The applicant will write his or her name on this card, seal the envelope, and use this number on all examination papers. In no case shall the applicant's name appear on the examination paper. The sealed envelopes will be handed to the Secretary and will not be opened until all papers are graded.

Rule XIX. Anyone detected in trying to give or obtain aid shall be dismissed from the class and his or her paper for the entire work will be rejected.

Rule XX. All writing must be legible and, together with spelling and use of correct language, will be taken into account in grading the answers. A correct set of answers to the questions on any one paper shall entitle the writer to the full mark on that subject, viz.: one hundred points. Partial or imperfect answers will be graded by the Examiner in accordance with their degree of fullness and correctness.

Rule XXI. Applicants are expected to be punctual at all examinations.

Rule XXII. Read the questions very carefully and do not give any information in the answers that is not asked for.

Rule XXIII. Write answers in the order of the questions. Do not copy the questions on your examination paper, but write the number of each question, in Roman numerals, in center of page before the answer.

Address L. M. Doss, President, 245 American Bank Building, Oklahoma City, Okla., or H. R. Watkins, Secretary-Treasurer, Oklahoma City, Okla.

Dental Hygienists' Act, 1919. Section 16. Any registered or licensed dentist may employ women assistants, who shall be known as dental hygienists. Such dental hygienists may remove lime deposits, accretions and stains from exposed surface of the teeth, and directly beneath the free margin of the gum, but shall not perform any other operation on the teeth or mouth, or any diseased tissue of the mouth. They may operate only in the office of any registered or licensed dentist under the general supervision of such dentist. The State Board of Dental Examiners may revoke the license of any registered or licensed dentist who shall permit any dental hygienist operating under his supervision to perform any operation other than that permitted under the provisions of this section.

Section 17. No person shall enter practice as a dental hygienist in this State until she has passed an examination given her by the Board of Dental Examiners of this State, under such rules and regulations as it may deem fit and proper to formulate. The fee for said examination shall be $10.00, and any applicant failing to pass said examination shall be entitled to one additional examination for an additional fee of $5.00. The fee for such re-examination thereafter shall be $5.00. The said Board of Dental Examiners shall issue certificates of ability to practise as dental hygienists in this State to those who have passed said examination; provided, however, that no person shall be entitled to such certificate unless she shall be eighteen years of age, of good moral character, and must be a graduate of a reputable training school for dental hygienists.

EXAMINATIONS. ABSTRACT FROM LAW DATED 1919.

Section 4. Any person twenty-one years of age who may desire to begin the practice of dentistry in the State of Oklahoma shall file his name, together with an application, with the Secretary of the Board.

At the time of making such application he shall deposit with the Secretary of the Board an examination fee of $25.00. He shall present himself at the next regular meeting of the Board and present his diploma from a reputable dental college of good standing of which the Board shall be the judge, along with satisfactory evidence of having the preliminary education of fourteen Carnegie units; or shall present a certificate from a State Board of Dental Examiners with which the Oklahoma Board shall have entered in reciprocal relations according to the Ashville resolution. The examination must be practical demonstrations and written or oral tests on such subjects as may be designated by the Board. Any member of the Board of Dental Examiners may inquire of an applicant for examination concerning his character, qualifications or experience, and may take testimony with respect thereto from anyone under oath, which any member is hereby empowered to administer. Any person successfully passing such examinations shall be registered as a licensed dentist in the Board register, also in the office of the County Clerk as provided herein below. He shall receive a certificate of registration, which certificate shall be signed by each member of the Board and shall be prominently displayed in his operating room. The examination fee shall in no case be refunded, but in case the applicant fails in the first examination he may take a subsequent examination in the branches in which he failed and the fee for such an examination shall be $10.00. Should the applicant again fail and desire to come before the Board for another examination, he may make application as at first, same to be accompanied by a fee of $25.00.

OLDENBURG

Oldenburg is one of the Free States of the German Reich. It has an area of nearly 2,500 square miles, and a population of over half a million. For the dental license requirements consult Germany.

OMAN

Maskat, Oman. There are no dental laws in Oman, and no license is required. It would be perhaps necessary to call upon the Sultan and request permission to practise, but this could not be withheld from an American as such rights are guaranteed by treaty.

There are no dentists in Oman, though at intervals one from India makes trips through the entire Persian Gulf country. All told in Oman, there are not more than twenty-five white people, and the natives are too poor to pay for having their teeth worked upon, so you may see that the opening for a dentist in this country is poor.

PRACTICAL HINTS

This department is in charge of V. C. Smedley, D.D.S., and George R. Warner, M.D., D.D.S., 610 California Building, Denver, Colorado. To avoid unnecessary delay, Hints, Questions and Answers should be sent direct to them.

NOTE—Mention of proprietary articles by name in the text pages of the DENTAL DIGEST is contrary to the policy of the magazine. Contribution containing names of proprietary articles will be altered in accordance with this rule. This Department is conducted for readers of the DENTAL DIGEST, and the Editor has no time to answer communications "not for publication." Please enclose stamp if you desire a reply by letter.

Editor Practical Hints:

I have a patient 22 years of age who insists on two upper bridges—second molars to first bicuspids, right and left.

The first molars and second bicuspids I extracted, there being nothing but roots, nothing above the gum. The second molars are the teeth causing me concern, as I do not wish to devitalize them. I have excavated to a point that an exposure is likely to occur at any time. No more leathery dentine remains, although with a sharp excavator I still can scrape dentine.

Do you think that the remaining dentine could be sterilized so as to render an aseptic field? I intend using a paste made of oil of cloves and silver B cement powder, laying this over the dentine, followed by the B cement for sealing.

Alcohol on cotton applied to cavity does not cause reaction, but a stream of cold water directed on cavity produces intense pain which disappears a moment or so after water is removed.

J. V. L.

ANSWER.—I would like to refer you to my answer to Doctor Barber in April Practical Hints. In my opinion, those second molars are probably perfectly capable of serving satisfactorily as healthy, vital bridge abutments, but I think you would make a mistake in attempting to sterilize the remaining decay over the pulps. I would advise blocking the nerve and excavating thoroughly; expose the pulp without hesitation if the decay proves to penetrate to the pulp. If the pulp is not unduly bruised or lacerated, as would be the case if you should carelessly plunge into it with bur or excavator, and if it does not show actual disintegration from infection it can, in all probability, be suc-

cessfully capped in a way to retain its normal vitality indefinitely. Its chances of surviving and functioning thus normally for an indefinite period of time are very much greater, in my opinion, following thorough excavation and careful capping with a correct material and technique than would be the case by leaving decay in and attempting to sterilize it by any method whatever.

I would avoid placing oil of cloves in contact with any exposed pulp. Eugenic acid contains all of the virtues minus the injurious impurities of oil of cloves. Neither would I use any silver salts in contact with an exposed pulp as I know, from many years of use of the formula published in my answer to Doctor Barber and referred to above, for application in practically all deep-seated or sensitive cavities as well as for pulp capping in actual contact with exposed pulps, that no other ingredient is necessary, and I feel that any silver salt or any other agent for which strong antiseptic properties are claimed may prove a detriment to the pulp's vitality and normal functioning. In addition to this, I personally discontinued the use of all silver salt cements some years ago because of their discoloring action upon the teeth.—V. C. SMEDLEY.

Editor Practical Hints:

Is there any advantage in rebasing a partial lower denture with soft velum rubber, where the alveolar ridge is thin and sharp and covered with only a very thin movable layer of soft tissue which is very sensitive to pressure of mastication? What are the disadvantages of velum rubber in such a place?

E. G. T.

ANSWER.—I think there is some advantage in velum rubber in such a case. In some instances a band of velum running entirely around the periphery and up on the lateral sides of the supporting ridge area for support is perhaps better than trying to cover the entire surface.

The disadvantages of velum are that it is porous and absorbs secretions and becomes foul after it has been worn for some months. The patient should understand that he should expect to have the velum replaced every once in a while. Velum rubber is very difficult to trim, in case any trimming is needed for adjustment. The best way to trim, I think, is to cut and sear it with a hot knife or instrument.—V. C. SMEDLEY.

Editor Practical Hints:

I am a constant reader of your "Practical Hints" and would appreciate a reply to the following, which I am sure would be of interest to other readers.

I made an upper partial cast aluminum with two gold clasps, no vulcanite.

A lower partial gold plate with gold clasps, no vulcanite.

Both of the above restorations are in the same patient's mouth. A woman of about 45.

Now she complained of seeing flashes of "lightning" in front of her on a rainy day. She picked up a spoon, touched the faucet and drew water, stood near a gas pipe, etc., and always the same sort of flash and a tingling sensation in the upper aluminum proper.

This occurred on the first day of wearing same, less marked the second and third days, but she still experiences said "phenomenon" but in a less degree.

Do you think that said sensation and flash will disappear? If not, what can be done on the upper (removable)? Patient is prejudiced against vulcanite and simply will not wear one.

P. S. I have another case on which I would like your advice, as to best suitable restoration.

Patient is wearing a full upper denture. Has a lower right cuspid devitalized, lower right lateral loose, and the right and left centrals are fairly firm and small.

The ridges or remaining parts of mouth are rather "Flat".

J. S. K.

Answer.—This is an interesting and I am sure must be also a very unusual case. I have never seen or heard of a similar one, though possibly some of our readers will be able to give us some information from their experience. My impression would be that there must be a galvanic electric action between two different metals; possibly between the gold and aluminum but, more likely, between the aluminum and amalgam fillings in the mouth, as this I do know, that there is apt to be an active galvanic or chemical reaction between amalgam and aluminum in the mouth. This "phenomenon" would possibly disappear after a time as galvanic action between contacting gold and amalgam fillings usually disappears if endured long enough. The safest and surest remedy, however, would be to replace the aluminum portion of the partial upper with gold. Personally, I have never felt that aluminum was suitable for partial denture construction anyway, as it has to be so bulky in order to provide sufficient strength.

In answer to your second question, it is my opinion, from your description of the case, without first-hand knowledge of the individual and of the exact conditions appertaining, that the extraction of these four teeth and the construction of accurately fitted and well balanced full upper and lower dentures would be the way to render this patient the most efficient service. Still, I have one patient in my practice

who has been wearing a lower denture for a number of years with only the two central incisors remaining. Those two teeth are very short and each is grasped by a well-fitted clasp.—V. C. SMEDLEY.

Editor Practical Hints:

Please give me the name of a sedative cement you are using in your practice for deep-seated cavities. Is there any possibility for the exposed or nearly exposed pulp to die under this cement?

Often in grinding down teeth to receive gold crowns, I find them sensitive beyond endurance soon as I begin to grind. I used phenol and hot air, and even mandibular injection with very little help. Please advise me what is it due to, and how to overcome it.

T. G. D.

ANSWER.—I am sending you a Folder which contains a formula published in the April DIGEST in my answer to Doctor Barber. It would be absurd to claim that there is no possibility for pulps to die under this sedative capping, for, as every dentist knows, pulps sometimes die even where there has been no cavity or filling whatever in the tooth. But such an astonishingly large proportion of teeth with exposed or nearly exposed pulps retain their normal vitality indefinitely under this material, that if I were to quote the exact percentage it would, no doubt, seem absolutely unbelievable to you. Experience with it in practice is the only thing, I believe, that could convince one of the unusual and outstanding merit of this formula for this purpose.

It surely must be a very rare individual case that will retain its sensitiveness, rendering preparation for a crown unendurable in spite of a correctly administered nerve block injection. In some operators' hands and on some teeth, I think, the interossius injection is more effective and satisfactory for individual teeth. After the crown preparation is completed and before you dismiss the patient adapt a temporary copper or aluminum band to approximate a fit on the prepared root and set this with this sedative cement. This will protect the dentine from infection from the saliva or irritation from exposure making that waiting period between the preparation of the tooth and the completion of the crown or bridge a period of comfort for the patient instead of one of annoyance and irritation resulting in a possible injury or eventual death of the pulp.—V. C. SMEDLEY.

Editor Practical Hints:

Beg to acknowledge receipt of your recent letter, and again wish to thank you for giving me the idea which I carried out very successfully to the mutual benefit of myself and patient. In making the plate

I put in three round lead pieces the size of two-thirds of a dime to relieve pressure of plate on the posterior palatine and anterior palatine nerves. This made the plate, after vulcanizing, look like it had four suction places. Upon putting the plate in the patient gagged once, then talked to me for twelve minutes by the clock without the plate dropping or his gagging. Upon calling attention of this fact to him, he said he felt no pressure or inclination to gag. This was on Tuesday, and the following Sunday evening his nephew told me he ate the full meal with his plate, a thing he had never seen the patient do before.

Have seen the patient once since, and he tells me he is never without his plate *except* when he smokes his pipe; then he removes it, because after the first few puffs he begins to gag. After his smoke he puts it in and everything is fine. He doesn't mind taking it out to smoke, but am wondering what is the reason he has to do so, especially as he is getting such comfort from the plate. What might be the reason?

G. R. M.

ANSWER.—I am pleased to note that you have succeeded in fitting your patient so successfully. My impression is that in smoking his pipe he holds the pipe-stem between the anterior teeth, which steady pressure tends to tip the distal border of the plate down sufficiently to relieve the palate of the slight pressure or close adaptation, thus permitting the tickling sensation which results in the gagging.

You could, if you wish to experiment, vulcanize a sort of horseshoe splint upon which he could maintain a pressure on the posterior teeth with the anteriors sufficiently gapped to permit the insertion of the pipe stem.—V. C. SMEDLEY.

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All questions and communications should be addressed to Elsie Pierce, care of THE DENTAL DIGEST, 220 West 42nd Street, New York City.

I should like to take a course in dental assisting. I am desirous of knowing more about the duties of the dental assistant so that I can render better service and be of greater assistance to my employer and his patients. It will have to be by correspondence, as I cannot leave the office. Please advise me how I can secure this training. West.

Your desire to become more efficient in your service is a very laudable ambition, and we are always glad to hear from dental assistants who desire to become more capable in their work. Somehow there seems to be such a large number of people in this world whose chief aim is to do as little as they can and whose chief concern seems to be to appear to know as little as possible! They are of the type who reach the office barely on time or who are always late and spend a good part of the time watching the clock. Needless to emphasize that such an individual has no place in a dental office!

I doubt that the taking up of dental assisting by correspondence would result in the benefits you anticipate. For a dental assistant to be efficient she must have practical knowledge of her work and the advantage of personal experience. These she can acquire only by performing her daily round of duties in the environment of a dental office, where each patient is a problem unto himself and each operation an experience.

The necessary fundamental qualities which every intelligent woman should possess when she takes up dental assisting, namely, culture, tact, alertness, willingness, cheerfulness, etc., cannot be acquired through a correspondence course.

If you will carefully study the various articles on the duties of a dental assistant that appear frequently in dental literature, you will find therein much information of value regarding the routine detail conduct of a dental office; but, better still, study the methods and pay

attention to the instructions of your employer so that you may render the service that you are called upon to give without having to be constantly reminded of the things you should do. If you will follow these suggestions, you will acquire the knowledge you desire without much expense.

Another beneficial thing for the dental assistant is for her to become a member of the dental assistants' society in her locality. These societies are organized for the purpose of expanding the education of their members; they furnish lectures, clinics, classes, etc., on every phase of dental assisting and are doing a great work toward educating the dental assistants to be more efficient in their calling.

In time it is hoped that every dental school in the country will have a department for the training of dental assistants, where they can secure the practical knowledge so necessary in the performance of the daily duties in the conduct of a dental office. This can be made a reality if the dental assistants will show a disposition to be earnest in their efforts and make themselves worthy of the establishing of their calling on a professional basis.

I have been working as a dental assistant for nearly a year and I think it is wonderful work. I am twenty years old and have never gone to high school. Realizing this handicap, I am going to endeavor to make up that work in two years if possible.

Could you give me an idea of the possibilities for a dental assistant? In selecting her life's work a girl who is in earnest usually likes to select an occupation to which she can return if, in later years after she has married, she has to earn her living. Do you think it possible to do that in this calling of dental assistant? Could she get work without having to study all over again? I shall appreciate your opinion.

New Jersey.

Your ambition to acquire a high school education is to be highly commended and I urge you to accomplish this as fundamental to the fulfilling of your desires for the future. However, in attempting to do four years' high school work in two, you will have little or no time for other studies or activities. To be of value to your employer you must apply yourself to your occupation, and if your school work is too intensive your mind will be so fully occupied with it that your daily tasks are very apt to be a secondary consideration and you will defeat the very purpose you are endeavoring to accomplish, that of being a capable dental assistant. Would it not be better for you to carry on your high school studies over a longer period, thus permitting you to divide your time between your occupation and your studies?

The possibilities for dental assistants depend entirely upon their adaptability and earnestness of purpose. As long as dentistry is practiced, there will always be opportunity in the field of dental assisting. The present thought in the minds of the leaders of the dental profession is that no dentist should be without a dental assistant, from the point of view of necessary assistance and his own protection as well as the protection and satisfaction of the patient. The young woman entering this field of opportunity should realize that her usefulness and success depend upon the service that she renders to her employer. In this calling, as in any other, the remuneration received is dependent upon the quality of service rendered.

As for a return to this occupation after a few years' absence, it will depend upon the individual herself; things once intelligently learned are not soon forgotten. Inasmuch as the procedure of each office is somewhat different, adaptability plus common sense are very necessary qualities for those who take up their life's work in the field of dental assisting.

Clinic Club

OF THE

EDUCATIONAL AND EFFICIENCY SOCIETY FOR DENTAL ASSISTANTS, NEW YORK

In May, 1923, a small group of the members of the Educational and Efficiency Society for Dental Assistants, First District, New York, successfully presented a progressive clinic at the Hotel Commodore, New York City, before the Dental Society of the State of New York. From this initial effort grew the Educational and Efficiency Clinic Club, organized in October, 1923. Now, after two years of further effort, the Club consists of almost the entire membership of the Society and has presented clinics in four different states before State and local societies of dentists and of dental assistants. Its members have always held before them the ideal of rendering more intelligent and practical service to the dentist and to the patient, and have demonstrated in their clinics the manner in which the assistant in the dental office may accomplish this service skillfully and unobtrusively.

As the closing activity of the 1924-1925 season, the members of the Club gave a clinic for the third time before a Convention of the Dental Society of the State of New York. On Thursday, May 14, 1925, the clinicians arranged their tables in the Grand Ballroom of the Ten Eyck Hotel at Albany, N. Y., and throughout the morning explained

their exhibits to a steady stream of interested and applauding dentists and dental assistants. The clinic was presented in its usual form with much new material added. The Secretarial Section showed the various methods of bookkeeping, systems of filing and many things of value in the secretarial work of the assistant. The Chair Assisting and General Accessories Division demonstrated the resourcefulness and ingenuity of the dental assistant, the many dental utilities she makes as aids to more efficient service, the various types of headrest covers and aprons, types of gauze and cotton swabs, and many suggestions for sensible economy. In the Sterilization Section were shown up-to-date methods of sterilization and the care of dental instruments, particularly of engine handpieces. The clinician in the X-Ray Division explained the proper preparation of the developing and fixing of solutions and the development, filing and mounting of radiographs. The value of the assistant in the laboratory was demonstrated in the Laboratory Assistance Section in the exhibits on the packing of dies, the carving and investing of gold inlays, the setting up and articulation of teeth and in porcelain staining. The Orthodontic Assistance Division explained the many services which the assistant to the orthodontist can render the operator and which add to the comfort of the patient.

Although the clinic was divided into these six sections to expedite demonstration, the whole represented the routine duties of the assistant to the dentist and proved her ability to adapt herself to any system or method of procedure she may be called upon to employ.

At the close of the morning session the Educational and Efficiency Society for Dental Assistants, New York, held a luncheon for dental assistants at the Green Parrot Tea Room. Juliette A. Southard, President of the American Dental Assistants Association and President of the Educational and Efficiency Society for Dental Assistants, New York, presided; Jessie C. Ellsworth, First Vice-President of the American Dental Assistants Association, attended as guest of honor, and there were present many up-State dental assistants, as well as members of the Society. Miss Southard and Miss Ellsworth addressed the gathering, and there were short talks by several of the visiting dental assistants.

The Educational and Efficiency Clinic Club meets on the third Monday of each month, September to May, inclusive, at 7:30 p. m., and at each session a different phase of the work of the dental assistant is explained. Due to the date of the Convention of the American Dental Assistants Association, the first meeting in the fall will be held at the office of Dr. W. Short, 342 Madison Avenue, New York City, September 14, 1925, at 7:30 p. m. All members of the Society are welcome.

EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—ADDISON

The rest of us could economize as well as Mr. Coolidge if we could see the ball games for nothing.

(Ella)—So you and Tom are to be married. Why, I thought it was a mere flirtation.

(Bella)—So did Tom!

The proof of a forgiving spirit is to weep when you read of a roadhouse being robbed.

(Willie)—I don't want to go to that d—— school any more!

(Father)—Why, Willie, where did you learn such a word as that?

(Willie)—Huh! William Shakespeare uses words like that.

(Father)—Well, you quit running around with him or I'll tan your hide!

FOR THE CROSS-WORDERS

An insect producing honey	B
A large body of water	C
A river in England	D
An instrument of vision	I
A singing bird	J
An ancient measurement	L
A braid of hair	Q
A non-alcoholic beverage	T
A mother sheep	U
Interrogation	Y

There is nothing particularly painful about talking to a bashful man if you don't watch his Adam's apple.

Late one evening a doctor received a call on the telephone from a trio of fellow-practitioners: "Pray step across to the club; we are one short for a rubber." "Emily, dear," he remarked to his wife, "I am called away again. It appears to be a serious case, for there are three doctors already in attendance."

(Sam)—Jack's a good fellow, but rather loquacious, don't you think?

(Rube)—Yeah; and besides he talks too much!

(Professor)—I am going to speak on liars today. How many of you boys have read the twenty-fifth chapter of the text? Nearly every student raised his hand.

"Good," said the Professor. "You are the very bunch to whom I wish to speak. There is no twenty-fifth chapter."

The man who wakes up and finds himself famous hasn't been asleep.

Ah, well; if he rocks the boat he will save some section gang the trouble of cleaning up a mess at a crossing.

"Are you the plumber?"

"Yes, mum."

"Well, see you exercise care when doing your work. All my floors are highly polished and in excellent condition."

"Oh, don't worry about me slippin', mum. I've got nails in me boots."

O, MLE, what XTC
I always feel when UIC,
I used to rave of LN'S eyes,
4 LC I gave countless sighs,
4 KT, 2, and LNR,
I was a keen competitor.
But each now's a non-NTT,
4 U XL them all UC.

I SHOULD WORRY!

If I'm descended from an ape, I am not much depressed by that; I shed no tears, I pin no crepe upon my coat sleeve or my hat. If some gorilla was the sire of my proud race I do not care; I'm nobly toiling at my lyre to settle for the bill of fare. I herd my hens and plow and sow, and do not care a tinker's oath what chanced a million years ago to either apes, or men, or both. I do my work in proper shape; I milk the cow and spray the tree, and if my grandsire was an ape it surely cuts no grass with me. I worry over many things connected with the present day; my flivver has two broken springs, I've found some mildew in my hay. The hair is falling from my dome, which makes me murmur and repine; my aunt is coming to my home, to visit for six weeks or nine. The chair I sit on falls apart, and lets me down and makes me swear; the cost of living fills my heart with indignation and despair. When I have concrete griefs like these, why should I fill the air with wails because my forebears sat in trees or swung from branches by their tails? I strive to dodge the bogie, debt; when buying things I pay the dough, and let the four eyed savants sweat o'er problems of the long ago. It may be they are talking bunk, it may be what they say is true, but there's no prehistoric monk can stop me when I've work to do.—*Walt Mason.*

FUTURE EVENTS

The Seventh Annual Meeting of the AMERICAN SOCIETY OF ORAL SURGEONS AND EXODONTISTS will be held at the Brown Hotel in Louisville, Kentucky, on September 18 and 19, 1925, the Friday and Saturday preceding the meeting of the American Dental Association.

EARLE H. THOMAS, *Secretary,*
30 North Michigan Avenue, Chicago.

The annual meeting of the NATIONAL ALUMNI CHAPTER OF PSI OMEGA FRATERNITY will be held at the Kentucky Hotel, Louisville, Kentucky, Monday, September 21, 1925. An executive session will be held at 10 A. M., and general session and initiation at 2 P. M.

The annual banquet for members and their ladies will be given at the Kentucky Hotel at 6:30 P. M. All members are requested to register at Headquarters upon arrival.

HAROLD S. SMITH, *Grand Master,*
1010 Belmont Ave., Chicago, Ill.

M. J. COUCH, *Secretary,*
3801 Broadway, Chicago, Ill.

The AMERICAN DENTAL ASSISTANTS ASSOCIATION will hold its first annual session, September 21-25, 1925, at Louisville, Ky.

Headquarters will be in the Green Room, Hotel Seelbach. Registration will start at ten o'clock on Monday, September 21st, and will continue during the succeeding days of the meeting. The first meeting of the House of Delegates will be held on Tuesday, September 22nd, at ten o'clock. The first general session will be held at two o'clock, Tuesday, September 22nd. Clinics for dental assistants will be given on Wednesday, September 23rd. There will be a dental assistants' luncheon on Thursday, September 24th. Clinics will be given before the American Dental Association, probably on Friday, September 25th.

Other interesting sessions will be announced later. All dental assistants and members of the dental profession are cordially invited to attend these meetings.

The annual meeting of the NATIONAL ASSOCIATION OF INDUSTRIAL DENTAL SURGEONS will be held at Brown Hotel, Louisville, Kentucky, Wednesday, September 23, 1925.

The SUSQUEHANNA DENTAL ASSOCIATION will hold its annual meeting in St. Stephen's Parish House, Wilkes-Barre, Pennsylvania, October 19-21, 1925. Study course—no exhibits.

FULLER L. DAVENPORT, *Chairman, Executive Committee,*
524 Miners Bank Bldg., Wilkes-Barre, Pa.